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ABSTRACT

The Educational Resources Information Center (ERIC) is a nationwide information system sponsored by the U.S. Department of Education's Office of Educational Research and Improvement (OERI). As part of the National Library of Education, ERIC maintains the largest education database in the world. This document consists of 82 ERIC Digests, which are 2-page research syntheses written by each of the 16 Clearinghouses that form the ERIC system. The digests in this volume provide an overview of issues, programs, and research related to the National Education Goals. They are grouped into eight sections corresponding to the goals and are organized alphabetically within each section. The introduction provides a history of the development of the National Education Goals and the passage of the Goals 2000: Educate America Act. It also describes the ways in which states are spending federal funding to achieve the national goals and summarizes findings of the National Education Goals Panel's "1996 Goals Report," which concluded that the nation has advanced significantly in five areas and faltered in eight. References accompany each digest. (LMI)

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ED 414 633

Striving for Excellence:

The National Education Goals

Volume III

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Foreword

This third volume of *Striving for Excellence* represents the collective efforts of the sixteen clearinghouses that constitute the Educational Resources Information Center (ERIC). Each of the ERIC Clearinghouses covers a specific area of education, selecting materials for the database, developing publications, and responding to requests for information from educators and the public. In addition, clearinghouse staff regularly synthesize research reports, conference papers, books, journal articles, etc., and compile the information into short ERIC Digests. The eighty-two ERIC Digests in this volume provide an overview of issues, programs, and research related to the National Education Goals. They are grouped into eight sections corresponding to the goals and are organized alphabetically within each section. The materials in this volume are in the public domain and may be reproduced and disseminated freely.

ERIC is a nationwide information system sponsored by the U.S. Department of Education's Office of Educational Research and Improvement (OERI). As part of the National Library of Education (NLE), ERIC maintains the largest education database in the world, containing more than 920,000 bibliographic records of documents and journal articles. Since 1966, ERIC has provided users with ready access to this literature by collecting, analyzing, and distributing education information from local, state, federal, and international sources. The ERIC database is accessible on the Internet <http://www.aspensys.com/eric>, through commercial online vendors, on CD-ROM, and in print and microfiche indexes. Full-text ERIC Digests are accessible online as well <http://www.ed.gov/databases/ERIC_Digests/index/>.

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Contents

Introduction ix

Goal 1: Ready To Learn 1
Assessing the Development of Preschoolers (ED 372 875) 3
Assessment of Preschool Children (ED 389 964) 5
Beginning Reading and Phonological Awareness for Students with Learning Disabilities (ED 392 197) 7
The Contribution of Documentation to the Quality of Early Childhood Education (ED 393 608) 9
Father/Male Involvement in Early Childhood Programs (ED 400 123) 11
Hispanic Preschool Education: An Important Opportunity (ED 405 398) 13
Lasting Benefits of Preschool Programs (ED 382 411) 17
School Readiness and Children's Developmental Status (ED 389 475) 19

Goal 2: School Completion 21
Assessing Employability Skills (ED 391 109) 23
Cultivating Resilience: An Overview for Rural Educators and Parents (ED 372 904) 25
Drop-Out Rates Among American Indian and Alaska Native Students: Beyond 27 Cultural Discontinuity (ED 388 492) 27
Dropout Intervention and Language Minority Youth (ED 379 951) 29
Outdoor Education and Troubled Youth (ED 385 425) 31
School Dropouts: New Information About an Old Problem (ED 386 515) 33
Vocational Support Strategies for Students with Emotional Disorders (ED 383 152) 35

Goal 3: Student Achievement and Citizenship 37
Achieving History Standards in Elementary Schools (ED 373 020) 39
Alternative Assessment and Second Language Study: What and Why? (ED 376 695) 41
Electronic Portfolios: A New Idea in Assessment (ED 390 377) 43
Emerging Student Assessment Systems for School Reform (ED 389 959) 45
Making the A: How To Study for Tests (ED 385 613) 47
Motivating Low Performing Adolescent Readers (ED 396 265) 49
The National Geography Content Standards (ED 381 480) 51
National Standards for Civics and Government (ED 380 401) 53
Opportunity To Learn Standards: Their Impact on Urban Students (ED 389 816) 55
Portfolios for Assessment and Instruction (ED 388 890) 57
Practical Ideas on Alternative Assessment for ESL Students(ED 395 500) 59
Priority on Learning: Efficient Use of Resources (ED 384 951) 61
Student Motivation To Learn (ED 370 200) 63

Goal 4: Teacher Education and Professional Development 65
Adult Literacy Practitioners as Researchers (ED 372 663) 67
Assessment Skills for School Counselors (ED 387 709) 69
Computer Skills for Information Problem-Solving: Learning and Teaching Technology in Context (ED 392 463) 71
Connecting Performance Assessment to Instruction: A Comparison of Behavioral Assessment, Mastery Learning, Curriculum-Based Measurement, and Performance Assessment (ED 381 984) 75

Countering Prejudice Against American Indians and Alaska Natives Through Antibias Curriculum and Instruction (ED 400 146) 77
Creating a Professional Workforce in Adult ESL Literacy (ED 369 308) 79
Creating Meaningful Performance Assessments (ED 381 985) 81
Empowering the Faculty: Mentoring Redirected and Renewed (ED 399 888) 83
K–12 Technology Planning at State, District, and Local Levels (ED 393 448) 85
Making Time for Teacher Professional Development (ED 400 259) 87
National and State Perspectives on Performance Assessment (ED 381 986) 89
Professional Teacher Development and the Reform Agenda(ED 383 694) 91
Reconceptualizing Professional Teacher Development (ED 383 695) 93
Recruitment and Retention of Minority Teachers in Vocational Education (ED 368 889) 95
The Role of Assessment in Counselor Certification (ED 388 885) 97
The Status and Scope of Faculty Evaluation (ED 385 315) 99
Taking Teaching Seriously: Meeting the Challenge of Instructional Improvement (ED 396 615) ... 101
Urban Teachers and Collaborative School-Linked Services (ED 371 108) 103
Using Performance Assessment in Outcomes-Based Accountability Systems (ED 381 987) 105

Goal 5: Mathematics and Science 107
African Americans in Science: Books for Young Readers (ED 382 455) 109
Books To Help Teachers Achieve Science Literacy (ED 402 153) 113
Making Mathematical Connections in High School (ED 380 310) 117
Making Mathematical Connections in Middle School (ED 380 309) 119
Making Mathematical Connections in the Early Grades (ED 380 308) 121
National Standards and Benchmarks in Science Education: A Primer (ED 402 156) 123
Not Just a Number: Critical Numeracy for Adults (ED 385 780) 125
Science Reasoning Ability of Community College Students (ED 393 505) 127
Teaching Evolution in School Science Classes (ED 402 148) 129

Goal 6: Adult Literacy and Lifelong Learning 131
Adult Learning in Nonformal Institutions (ED 399 412) 133
Distance Learning, the Internet, and the World Wide Web (ED 395 214) 135
Facilitating Postsecondary Outcomes for Mexican Americans (ED 372 903) 137
Inclusive Adult Learning Environments (ED 385 779) 139
Journal Writing and Adult Learning (ED 399 413) 141
Mexican American Women: Schooling, Work, and Family (ED 388 490) 143
The Project for Adult College Education (PACE): Student Characteristics, Perceptions, and Writing Development (ED 385 316) 145
Selling Workplace ESL Instructional Programs (ED 392 315) 147
Transitioning Adult ESL Learners to Academic Programs (ED 385 173) 149
Workplace Literacy: Its Role in High Performance Organizations (ED 383 858) 151

Goal 7: Safe, Disciplined, and Alcohol- and Drug-Free Schools 153
Enhancing Students' Socialization: Key Elements (ED 395 713) 155
Gaining Control of Violence in the Schools: A View from the Field (ED 377 256) 157
National Standards for School Health Education (ED 387 483) 161
Peer Conflicts in the Classroom (ED 372 874) 163
School Violence Prevention (ED 379 786) 165
Violence and Young Children's Development (ED 369 578) 167

Goal 8: Parental Participation **169**
The Changing Face of Parenting Education (ED 382 406) 171
Comprehensive Planning: Guidance for Educators of American Indian and Alaska Native Students (ED 400 145) 173
Family Role in Career Development (ED 389 878) 175
Forging Partnerships Between Mexican American Parents and the Schools (ED 388 489) 177
Funds of Knowledge: Learning from Language Minority Households (ED 367 146) 179
Grandparents as Parents: A Primer for Schools (ED 401 044) 181
Language Minority Students in School Reform: The Role of Collaboration (ED 400 681) 183
Parent, Family, and Community Involvement in the Middle Grades (ED 387 273) 185
Parent Participation in Middle School Language Arts (ED 399 564) 187
Preventing and Resolving Parent–Teacher Differences (ED 401 048) 189

The National Education Goals

Goal 1: Ready To Learn

By the year 2000, all children in America will start school ready to learn.

Goal 2: School Completion

By the year 2000, the high school graduation rate will increase to at least 90 percent.

Goal 3: Student Achievement and Citizenship

By the year 2000, all students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter, including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.

Goal 4: Teacher Education and Professional Development

By the year 2000, the nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.

Goal 5: Mathematics and Science

By the year 2000, United States students will be first in the world in mathematics and science achievement.

Goal 6: Adult Literacy and Lifelong Learning

By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

Goal 7: Safe, Disciplined, and Alcohol- and Drug-Free Schools

By the year 2000, every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning.

Goal 8: Parental Participation

By the year 2000, every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.

Introduction

In 1989, President Bush and the nation's governors, led by then-Governor Bill Clinton, convened in Charlottesville, Virginia, to address continuing concerns surrounding the academic performance of American students. The state-led education reform agenda of the 1980s had produced moderate but inequitable gains in student achievement, and Americans continued to lag behind their international counterparts, raising questions about the future economic viability of a globally uncompetitive U.S. workforce. The Charlottesville Summit acknowledged the need for—and represented the first step toward—formulating a national response to these and other education issues.

Drawing on the combined talents of educators, politicians, business leaders, and other community members, leaders at the Summit reaffirmed the education objectives of the 1980s and urged the nation to reach higher in the 1990s. The collaborative, bipartisan effort challenged the states to raise their academic standards, prepare their students accordingly, and hold their schools accountable for the results.

The Summit culminated in the establishment of the National Education Goals, a comprehensive 10-year education reform agenda that set goals in the areas of: school readiness; school completion; student achievement and citizenship; mathematics and science; adult literacy and lifelong learning; and safe, disciplined, and alcohol- and drug-free schools. In the early 1990s, two additional goals—teacher education and professional development and parental participation—were added to acknowledge two other concepts: first, that students are only as skilled as the teachers who educate them, and second, that parents play a critical role in preparing their children for life's challenges.

Congress formally signed all eight goals into law with the passage of the GOALS 2000: Educate America Act in 1994. To make the goals more attainable, the Act also established the federal government's role in facilitating state and local reform activities. Some states—believing the Act would establish national standards, mandate educational practices, impose multiple rules and regulations, or otherwise seize control of local education—were initially reluctant to accept federal funds. To simultaneously dispel these myths and garner state support, the federal government launched an information campaign that culminated in the amendment of GOALS 2000 with the 1996 Appropriations Act. As a result, attendant federal funding rose $247.3 million between 1994 and 1996, indicating the states' willingness to participate in programs that allow them to design and implement their own solutions.

These increases in federal funding are being spent in many different ways. For example, Kansas is utilizing part of its $3.1 million GOALS 2000 grant to recruit and develop staff in an effort to help students meet the state's content standards. Delaware is focusing more than $940,000 of its funds on curriculum design and implementation. Other states—including Colorado, Nevada, and Texas—are using the grants to develop, evaluate, or revise their respective academic standards. New standards, of course, require new assessments to measure student performance. In turn, improved school accountability facilitates the execution of "triage" programs, allowing states to direct assistance to those districts demonstrating the greatest need. In Ohio, for example, 127 school districts have been targeted for special assistance based upon low fourth- and ninth-grade proficiency test scores. A state liaison then assists each district in the development of appropriate individual improvement strategies. New Mexico is also focusing strongly on accountability and, like Ohio, is evaluating student performance within the context of community-based standards, objectives, and improvement plans. Extensive employment of this results-oriented approach, rather than a compliance-driven model, highlights the states' freedom to exercise individual initiative in pursuit of the goals.

As the millennium approaches, a question that naturally arises is, "Has any progress been made toward achieving the goals?" In an ongoing effort to answer this question, the National Education Goals Panel periodically collects statistics on twenty-five core education indicators and compares them with baseline figures established as close as possible to 1990, the year the goals were officially adopted. The Panel's *1996 Goals Report*, the sixth in a series of annual publications, shows that the nation has advanced significantly in five areas and faltered in eight.

Recent statistics show that high school seniors are graduating with weaker literacy skills *(Goal 3)*: the percentage of twelfth-grade students meeting the Goals Panel's performance standard in reading dropped from 40 to 36 percent between 1992 and 1994. Teacher preparation is also a major issue *(Goal 4)*: the percentage of secondary school teachers holding an undergraduate or graduate degree in their main teaching assignment fell from 66 percent in 1991 to 63 percent in 1994. Participation in adult education continues to be tied to current educational level *(Goal 6)*: the gap in program participation between adults with postsecondary or technical training and those without increased five percentage points between 1991 and 1995. In addition, the gap in college completion rates between white and Hispanic students increased six percentage points between 1992 and 1995. Finally, the overall school environment is less conducive to learning *(Goal 7)*: the percentage of tenth-grade students using illicit drugs increased from 24 percent in 1991 to 36 percent in 1995, and the percentage of tenth-grade students offered illicit drugs at school, freely or for sale, rose from 18 percent in 1992 to 28 percent in 1995. Behavioral problems continue to plague our schools: over the 3-year period beginning in 1991, the percentage of public school teachers reporting that they were threatened or injured at school during the previous year increased from 10 to 15 percent. Moreover, the percentage of secondary school teachers reporting classroom disruptions that hindered teaching and learning increased from 37 percent to 46 percent over the same time period. In addition, no significant progress has been made in many other areas—including fourth- and eighth-grade reading achievement, twelfth-grade mathematics achievement, and high school completion rate.

On the positive side, children are in a better position to learn when they start school *(Goal 1)*: between 1990 and 1994, the percentage of infants born with one or more health risks dropped from 37 percent to 34 percent. Moreover, the percentage of preschoolers regularly read to by their parents increased from 66 percent in 1993 to 72 percent in 1996. Our students are achieving more in mathematics *(Goal 3)*: the percentage of fourth- and eighth-grade students meeting the Goals Panel's performance standard in mathematics rose from 13 to 18 percent and from 15 to 21 percent, respectively, between 1990 and 1992. In addition, more college students overall and more females, specifically, are majoring in mathematics and science *(Goal 5)*: over the 3-year period beginning in 1991, the percentage of students and females receiving math and science degrees increased from 39 to 41 percent and from 35 to 38 percent, respectively. Finally, our schools appear to be safer environments in one respect *(Goal 7)*: the percentage of tenth-grade students reporting that they were threatened or injured at school during the previous year dropped from 40 percent in 1991 to 35 percent in 1995.

Setbacks are a natural part of any complex endeavor; they indicate a need for perseverance and heightened efforts. In this spirit, President Clinton, various state governors, and many respected business leaders assembled at the 1996 National Education Summit to renew the nation's commitment to creating and attaining a new standard of excellence for its teachers, students, and schools, and to working together at all levels of society to accomplish the task.

For more information, contact the National Education Goals Panel (NEGP) by calling (202) 632–0952, e-mailing *negp@goalline.org*, or writing to 1255 22nd Street NW, Washington, DC 20027; or visit the NEGP Web site <http://www.negp.gov/> to download the *1996 National Education Goals Report*.

Goal 1: Ready To Learn

By the year 2000, all children in America will start school ready to learn.

Objectives:

- All children will have access to high-quality and developmentally appropriate preschool programs that help prepare children for school;
- Every parent in the United States will be a child's first teacher and devote time each day to helping such parent's preschool child learn, and parents will have access to the training and support parents need; and
- Children will receive the nutrition, physical activity experiences, and health care needed to arrive at school with healthy minds and bodies, and to maintain the mental alertness necessary to be prepared to learn, and the number of low-birthweight babies will be significantly reduced through enhanced prenatal health systems.

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ERIC DIGEST

October 1994 • EDO-PS-94-15

Assessing the Development of Preschoolers

Lilian G. Katz

It is only natural for parents to wonder occasionally if the development of their preschooler is going well. Questions such as, Is my child doing what he or she is supposed to at this age? and, Do all four-year-olds behave this way in the same situations? reflect a natural desire to be sure the child is progressing normally. Over the years, psychologists have developed many normative scales to indicate how an individual child compares with others of a given age in similar populations.

This digest focuses on the question of individual growth, namely, Is the individual child's development going so well that he or she can be described as thriving? As parents look at their own young children's behavior and achievements on the categories outlined below, they can address the question, What aspects of my child's development need special encouragement, support, or intervention right now?

Categories of Behavior To Assess

In the course of development, ups and downs are inevitable even for children whose physical and mental endowments are normal. Occasionally children require intervention to get them successfully through a "down" period. Parents can observe behaviors in the eleven categories listed below during periods when they suspect a bit of a downturn. Keep in mind that difficulties in any single category are no cause for alarm. Indeed, difficulties in several categories do not imply irreversible problems; rather, they help us notice those periods when the child's life situation, for many possible reasons, is a bit out of adjustment with his or her emerging needs.

For three-year-olds, a look at their behavior on the following criteria for a period of about three weeks is desirable. For four-year-olds, four weeks should give a reliable picture of the quality of the child's life. At five years, add another week, and so forth. Be careful not to judge their permanent behavior based on one day's observation! All of us—children and adults—have the occasional really bad day!

1. Sleeping Habits
Does the child usually fall asleep easily and wake up rested, ready to get on with life? Occasional restless nights, nightmares, or grouchy mornings are all right. The average pattern of deep sleep resulting in morning eagerness is a good sign that the child experiences life as satisfying. Frequent insomnia or morning grouchiness for three or four weeks may indicate that a child is trying to cope with excessive stress, and a modification in life style might be tried.

2. Eating Habits
Does the child usually eat with appetite? Occasional skipping of meals or refusal of food is to be expected. Sometimes a child is too busy with absorbing activities to bother with food at mealtimes. Also, remember that children may eat a lot at one meal and hardly anything at the next. However, a preschooler who for several weeks eats as though famine were around the corner or who constantly fusses about the menu or picks at the food may be asking for comfort.

3. Toilet Habits
Does the child have, on the average over several weeks, bowel and bladder control, especially during the day? Occasional "accidents" are all right, particularly under special circumstances, such as excessive intake of liquids, intestinal upset, or an intense concentration with ongoing activity so that the child is too absorbed to attend to such "irrelevancies." Children who sleep well often take longer to stay continent at night.

4. Range of Emotions
Does the child show the capacity for a range of emotions such as joy, anger, sorrow, grief, enthusiasm, excitement, frustration, love, and affection? These need not be exhibited all in one day, of course, but should be seen over several weeks. A child whose emotions don't vary—who is always angry or sour or enthusiastic—may be in trouble. Note that expressions of sadness are not necessarily problematical; in appropriate situations, they can indicate the ability to really care about others.

5. Friendship
Can the child initiate and maintain satisfying relationships with one or more peers? A child who often plays alone is not experiencing a developmental problem as long as the cause is not insufficient social competence. A child who is fearful of peers or who frequently claims superiority over others may be seeking reassurance or may doubt his or her ability to meet parents' lofty expectations.

6. Variations in Play
Does the child's play vary, and does the child add elements to the play, even though the play is with the same toys or materials? A child who ritualistically and repetitively goes through the same sequence of play, with the same

elements and in the same way, may be emotionally "stuck in neutral," indicating perhaps that the child has insufficient inner security to "play with the environment."

7. Responses to Authority

Does the child usually accept adult authority? Occasional resistance, self-assertion, protest, and objections, when followed by ultimate yielding to the adult, indicate healthy socialization processes. Unfailing acceptance of adult demands and restrictions without a peep suggest excessive anxiety.

8. Curiosity

Does the child occasionally exhibit curiosity, adventure, and even mischief? A child who never pries or snoops where forbidden may not be pushing against perceived boundaries enough for healthy development or may fear punishment excessively. On the other hand, frequent manifestation of these behaviors may indicate a search for boundaries.

9. Interest

Does the child occasionally become involved, absorbed, and interested in something outside of him- or herself? The emphasis here is on sustained involvement in "activities" rather than in "passivities" such as television. A preschooler who cannot become absorbed in an activity or who rarely stays with a project until completion may need help.

10. Spontaneous Affection

Does the child express spontaneous affection for one or more of those responsible for his or her care? Note that this criterion refers to spontaneous declarations of love, not such displays as the required goodnight kiss. Also, demonstrations of affection vary among families and cultures and must be taken into account on this criterion. Nevertheless, in culturally appropriate ways, a child who is thriving is likely occasionally to express affection toward caretakers and deep pleasure in being with them. Excessive expressions of this kind, however, may signal doubts about the feelings caretakers have toward the child.

11. Enjoyment of the "Good Things of Life"

Does the child enjoy the "good things of life?" For young children, playing with others; going to picnics, parties, festivals, and new places; and exploring new toys are parts of the good life. If a child has a problem such as shyness, fear of dogs, or food dislikes, but the problem is not so severe that it prevents him or her from enjoying childhood pleasures, then assume that the child will outgrow the problem. If, however, problems do prevent enjoyment of the good things of childhood, help is called for.

Suggestions for Intervention

The first three of these eleven criteria of sound development—sleeping, eating, and toilet habits—are particularly sensitive indicators of the child's well-being because only the child has control of them. The other criteria are more culture-bound and situationally determined. When the pattern of a child's behavior on about half of the criteria seems less than optimum over a period of about a month, some remedial action should be taken.

While each individual case will require its own special intervention, some general approaches are worth trying right away. For example, no matter what the underlying cause, almost all young children respond well to spending time alone with an adult who is important to them. The important adult may be a parent, relative, caregiver, or anyone else with whom the child has a significant relationship. The time can be spent walking around the block, helping to tidy up a closet, gardening, baking a cake, or doing anything else the child really enjoys. The activity should be simple; it need not be an exotic trip to a faraway place. The main point is having someone special all to oneself. A few minutes a day for a few weeks will invariably help alleviate whatever stresses the child has encountered. Once the level of stress is reduced and the child is more relaxed, he or she may then become more responsive to a parent's guidance and suggestions about how to cope with the problem at hand.

In some cases a child's development can get back on track when his or her daily routines are simplified. Many preschoolers have a hard time coping with frequent, rapid, changes in environments within a day or week in which they are expected to be responsive and cooperative, to exercise self-control, and to be self-sufficient. For such children, reducing the number and rate of changes can go a long way to helping them "get back on the right foot."

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Assessment of Preschool Children

Nicholas A. Vacc and Sandra H. Ritter

Assessment of Preschool Children

With the enactment of the *Education for All Handicapped Children Act* (PL 94-142) of 1975 and its amendments (PL-99-457 of 1986 and PL 101-476 of 1990), all children are entitled to appropriate free education and related services regardless of disabilities. As a result, major strides have been made toward providing services for developmentally delayed children. These services include transportation, case management, family training and counseling, home visits for counseling, health services, medical services for diagnostic purposes, nursing services, nutrition services, occupational therapy, physical therapy, psychological services, social-work services, special classroom instruction, adapted physical education, audiology, and speech-language pathology. To gain access to these services, children who are suspected of having developmental or physical disabilities have to be referred to trained and qualified individuals or multi-disciplinary teams for assessment in cognitive, physical, language and speech, psychosocial, and self-help areas.

Young children, however, are difficult subjects to assess accurately because of their activity level and distractibility, shorter attention span, wariness of strangers, and inconsistent performance in unfamiliar environments. Other factors that may affect a child's performance include cultural differences and language barriers, parents not having books to read to their child and a child's lack of interaction with other children. Consequently, assessment of infants, toddlers, and young children requires sensitivity to the child's background, and knowledge of testing limitations and procedures with young children.

Current Trends

Assessment, differentiated from test administration and interpretation, is usually a comprehensive process of gathering information about a child across developmental areas. Benner (1992) reported several continua along which assessments fall: (a) norm-referenced to criterion-referenced, product oriented to process oriented assessment; (b) formal to informal assessment, direct to indirect assessment; (c) standardized tests to handicap-accommodating tests; and (d) single-discipline approach to team approach. The present trend in preschool assessment is toward the latter perspective of each continuum with strengths being emphasized rather than deficits.

Thus, current trends in preschool assessment include a move away from a "single assessor" model to an environmental model which is designed for the individual child. Through a team approach, children are evaluated with family members present, and factors of the home and social environment are taken into consideration. Because of the increased situation-specificity of developmental tests, which can be administered by professionals other than practicing psychologists, their use is increasing (Niemeyer, J. A., personal communication, August 19, 1994).

It has been recommended that norm-referenced tests, such as intelligence tests which historically have been used as a measure of ability and as an entrance criterion for programs such as Head Start, be replaced with assessments based on multiple theoretical perspectives (Niemeyer, J. A. personal communication, August 19, 1994). A more holistic evaluation of the child can be obtained by integrating tests of cognitive ability with other measures such as assessment of social and motor skills development.

Characteristics of Preschool Assessment

In identifying appropriate interventions at the preschool level, there is less focus on testing and more on evaluating the individual child. Some of the more important characteristics are as follows:

Criterion referenced and process oriented

Criterion-referenced tests allow each child to be assessed as an individual. Comparing the child with developmental milestones and selecting areas to reinforce allows interventions to be specifically tailored to a child. Attention is given to the *process* of the interactions (i.e., whether the assessment is being conducted in a way that optimizes the child's demonstration of abilities).

Informal, indirect, and naturalistic evaluations

Informal, relaxed settings where the child can be as much at ease as possible are recommended when doing assessment. Assessing a child within the context of his or her community and the interacting social systems, and taking into account the family's needs, resources, and concerns affect both the evaluation and possible interventions. One of the most important developments in this area is Trans-disciplinary Playbased Assessment (Linder, 1993), during which the child engages in play with a familiar person and the interactions of the child with the adult are observed by a team. The assessment is constructed so that the team can communicate with the play facilitator concerning unobserved skills (e.g., can the child stack three blocks). The combination of informal playbased assessment and more directed and structured ac-

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tivities provides greater opportunity for a high level of performance (Bagnato & Neisworth, 1994).

Handicap accommodating assessments

Standardized assessment procedures present problems when a child has a handicap that impedes test performance even though the area being examined is not related to the handicap. Attention is being directed toward developing assessment procedures that accommodate for handicaps and provide a more accurate evaluation of the child.

Multi-disciplinary/trans-disciplinary approach

Because single discipline evaluations provide a "snapshot" from a limited perspective, assessments involving more than one discipline are recommended. Options include multi-disciplinary, inter-disciplinary, and trans-disciplinary assessments. Multi-disciplinary teams are based on the medical model where many disciplines evaluate individually and provide reports to a central figure. Inter-disciplinary team members assess the child individually and then convene to discuss findings and form joint recommendations. With a trans-disciplinary team, representation of all disciplines that are needed for a child (e.g., occupational therapy, speech therapy, medical doctor, nutritionist) are present, and the child is observed and discussed by all at the same time, thus providing an evaluation of the total child.

The Role of Mental Health Practitioners

Many current methods for preschool assessment are designed to be convenient for both the assessors and the families, and to have all individuals involved with a child participate directly in the evaluation process. Improvement is fostered when a holistic concept of the child is provided through a multi-disciplinary or trans-disciplinary assessment that is part of a larger set of conditions which promote change, such as family system interventions (AAHE, 1992). In many instances, the mental health practitioners (e.g., counselors) will not be directly involved in the test administration, but will work with the family during the process. In particular, mental health practitioners can provide information on testing, legal requirements, and the merits and limitations of preschool assessment methods. It is helpful for the parents to know that the principles of good assessment practice reflect a multi-dimensional, integrated understanding of learning, explicitly stated purposes, experiences that lead to results, and continuous intervention and re-evaluation. Mental health practitioners who are actively involved as part of the assessment team evaluating a referred child need to be familiar with the different assessment methods and their limitations, as well as current assessment trends and the reasoning behind them. This is especially important given that as few as 10% of tests administered to preschool children have been reported as appropriate to screen that population (Wortham, 1990). If mental health practitioners are not participants in the assessment process but are in the position of working with a child or the family after an assessment has been completed and a referral has been made, they need to evaluate whether the instruments employed, the assessment environment, and the way in which the evaluation was administered were appropriate for the particular child.

Summary

Major changes in the level of interest and evaluation methods employed in preschool assessment have occurred in the past decade. The current trend is toward an ecological, child-centered approach which includes trans- or multi-disciplinary evaluations. Such approaches evaluate the "total child" rather than a specific area.

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BEGINNING READING AND PHONOLOGICAL AWARENESS FOR STUDENTS WITH LEARNING DISABILITIES

Learning to read begins well before the first day of school. When Ron and Donna tell nursery rhymes to their baby, Mia, they are beginning to teach Mia to read. They are helping her to hear the similarities and differences in the sounds of words. She will begin to manipulate and understand sounds in spoken language, and she will practice this understanding by making up rhymes and new words of her own. She will learn the names of the letters, and she will learn the different sounds each letter represents. As she gets a little older, Ron and Donna will teach her to write letters and numbers that she will already recognize by their shapes. Finally, she will associate the letters of the alphabet with the sounds of the words she uses when she speaks. At this point, she is on her way to learning to read!

When she tries to read books with her parents, at school, and on her own, Mia will learn *how to learn* new words by sounding them out. With more practice, she will begin to recognize familiar words easily and quickly, and she will know the patterns of spelling that appear in words and the patterns of words as they appear in sentences. She will be able to pay attention not just to the letters and words, but to the meanings they represent. Ultimately, Mia will be able to think about the meaning of the text as she reads.

Where does phonological awareness fit into this process?

Key to the process of learning to read is Mia's ability to identify the different sounds that make words and to associate these sounds with written words. In order to learn to read, Mia must be aware of phonemes. A phoneme is the smallest functional unit of sound. For example, the word *cat* contains three distinctly different sounds. There are 44 phonemes in the English language, including letter combinations such as /th/.

In addition to identifying these sounds, Mia must also be able to manipulate them. Word play involving segmenting words into their constituent sounds, rhyming words, and blending sounds to make words is also essential to the reading process. The ability to identify and manipulate the sounds of language is called phonological awareness. Adams (1990) described five levels of phonological awareness ranging from an awareness of rhyme to being able to switch or substitute the components in a word. While phonological awareness affects early reading ability, the ability to read also increases phonological awareness (Smith, Simmons, & Kameenui, 1995).

Many children with learning disabilities have deficiencies in their ability to process phonological information. Thus, they do not readily learn how to relate letters of the alphabet to the sounds of language (Lyon, 1996). For all students, the processes of phonological awareness, including phonemic awareness, must be explicitly taught.

Children from culturally diverse backgrounds may have particular difficulties with phonological awareness. Exposure to language at home, exposure to reading at an early age, and dialect all affect the ability of children to understand the phonological distinctions on which the English language is built. Teachers must apply sensitive effort and use a variety of techniques to help children learn these skills when standard English is not spoken at home (Lyon, 1994).

How is phonological awareness taught?

To teach phonological awareness, begin by demonstrating the relationships of parts to wholes. Then model and demonstrate how to segment short sentences into individual words, showing how the sentence is made up of words. Use chips or other manipulatives to represent the number of words in the sentence. Once the students understand part-whole relationships at the sentence level, move on to the word level, introducing multisyllable words for segmentation

into syllables. Finally, move to phoneme tasks by modeling a specific sound and asking the students to produce that sound both in isolation and in a variety of words and syllables.

It is best to begin with easier words and then move on to more difficult ones. Five characteristics make a word easier or more difficult (Kameenui, 1996):

1. The size of the phonological unit (e.g., it is easier to break sentences into words and words into syllables than to break syllables into phonemes).
2. The number of phonemes in the word (e.g., it is easier to break phonemically short words such as no, see and cap than snort, sleep or scrap).
3. Phoneme position in words (e.g., initial consonants are easier than final consonants and middle consonants are most difficult).
4. Phonological properties of words (e.g., continuant, such as /s/ and /m/ are easier than very brief sounds such as /t/).
5. Phonological awareness challenges (e.g., rhyming and initial phoneme identification are easier than blending and segmenting).

Examples of phonological awareness tasks include phoneme deletion ("What word would be left if the /k/ sound were taken away from cat?"); Word to word matching ("Do pen and pipe begin with the same sound?"); Blending ("What word would we have if we blended these sounds together: /m/ /o/ /p/?"); Phoneme segmentation ("What sounds do you hear in the word hot?"); Phoneme counting ("How many sounds do you hear in the word cake?"); and Rhyming ("Tell me all of the words that you know that rhyme with the word cat?") (Stanovich, 1994).

Beginning readers require more direct instructional support from teachers in the early stages of teaching. This is illustrated in the following example: The teacher models the sound or the strategy for making the sound and has the children use the strategy to produce the sound. It is very important that the teacher model the correct sounds. This is done using several examples for each dimension and level of difficulty. The children are prompted to use the strategy during guided practice and more difficult examples are introduced. A sequence and schedule of opportunities for children to apply and develop facility with sounds should be tailored to each child's needs, and should be given top priority. Opportunities to engage in phonological awareness activities should be plentiful, frequent, and fun (Kameenui, 1996).

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The Contribution of Documentation to the Quality of Early Childhood Education

Lilian G. Katz and Sylvia C. Chard

The municipal preprimary schools in the northern Italian city of Reggio Emilia have been attracting worldwide attention for more than a decade. The reasons are many and have been discussed by a number of observers and visitors (see Edwards, Gandini, & Forman, 1993, and Katz & Cesarone, 1994.) While interest in what is now called the "Reggio Emilia Approach" is focused on many of its impressive features, perhaps its unique contribution to early childhood education is the use of the documentation of children's experience as a standard part of classroom practice.

Documentation, in the forms of observation of children and extensive recordkeeping, has long been encouraged and practiced in many early childhood programs. However, compared to these practices in other traditions, documentation in Reggio Emilia focuses more intensively on children's experience, memories, thoughts, and ideas in the course of their work. Documentation practices in Reggio Emilia preprimary schools provide inspiring examples of the importance of displaying children's work with great care and attention to both the content and aesthetic aspects of the display.

Documentation typically includes samples of a child's work at several different stages of completion; photographs showing work in progress; comments written by the teacher or other adults working with the children; transcriptions of children's discussions, comments, and explanations of intentions about the activity; and comments made by parents. Observations, transcriptions of tape-recordings, and photographs of children discussing their work can be included. Examples of children's work and written reflections on the processes in which the children engaged can be displayed in classrooms or hallways. The documents reveal how the children planned, carried out, and completed the displayed work.

It seems to us that high-quality documentation of children's work and ideas contributes to the quality of an early childhood program in at least six ways.

1. Enhancement of children's learning

Documentation can contribute to the extensiveness and depth of children's learning from their projects and other work. As Loris Malaguzzi points out, through documentation children "become even more curious, interested, and confident as they contemplate the meaning of what they have achieved" (Malaguzzi, 1993, p. 63). The processes of preparing and displaying documentaries of the children's experience and effort provides a kind of debriefing or re-visiting of experience during which new understandings can be clarified, deepened, and strengthened. Observation of the children in Reggio Emilia preprimary classes indicates that children also learn from and are stimulated by each other's work in ways made visible through the documents displayed.

The documentation of the children's ideas, thoughts, feelings, and reports are also available to the children to record, preserve, and stimulate their memories of significant experiences, thereby further enhancing their learning related to the topics investigated. In addition, a display documenting the work of one child or of a group often encourages other children to become involved in a new topic and to adopt a representational technique they might use. For example, Susan and Leroy had just done a survey of which grocery stores in town are patronized by the families of their classmates. When Susan wanted to make a graph of her data, she asked Jeff about the graph displayed of his survey about the kinds of cereal their class ate for breakfast. With adult encouragement, children can be resourceful in seeking the advice of classmates when they know about the work done by the other children throughout the stages of a project.

2. Taking children's ideas and work seriously

Careful and attractive documentary displays can convey to children that their efforts, intentions, and ideas are taken seriously. These displays are not intended primarily to serve decorative or show-off purposes. For example, an important element in the project approach is the preparation of documents for display by which one group of children can let others in the class working on other aspects of the topic learn of their experience and findings. Taking children's work seriously in this way encourages in them the disposition to approach their work responsibly, with energy and commitment, showing both delight and satisfaction in the processes and the results.

3. Teacher planning and evaluation with children

One of the most salient features of project work is continuous planning based on the evaluation of work as it progresses. As the children undertake complex individual or small group collaborative tasks over a period of several days or weeks, the teachers examine the work each day and discuss with the children their ideas and the possibilities of new options for the following days. Planning decisions can be made on the basis of what individual or groups of children have found interesting, stimulating, puzzling, or challenging.

For example, in an early childhood center where the teachers engage weekly—and often daily as well—in review of children's work, they plan activities for the following week collaboratively, based in part on their review. Experiences and activities are not planned too far in advance, so that new strands of work can emerge and be documented. At the end of the morning or of the school day, when the children are no longer present, teachers can reflect on the work in progress and the discussion which surrounded it, and consider possible new directions the work might take and what suggestions might support the work. They can also become aware of the participation and development of each individual child. This awareness enables the teacher to optimize the children's chances of representing their ideas in interesting and satisfying ways. When teachers and children plan together with openness to each other's ideas, the activity is likely to be undertaken with greater interest and representational skill than if the child had planned alone, or the teacher had been unaware of the challenge facing the child. The documentation provides a kind of ongoing planning and evaluation that can be done by the team of adults who work with the children.

4. Parent appreciation and participation

Documentation makes it possible for parents to become intimately and deeply aware of their children's experience in the school. As Malaguzzi points out, documentation "introduces parents to a quality of knowing that tangibly changes their expectations. They reexamine their assumptions about their parenting roles and their views about the experience their children are living, and take a new and more inquisitive approach toward the whole school experience" (Malaguzzi, 1993, p. 64).

Parents' comments on children's work can also contribute to the value of documentation. Through learning about the work in which their children are engaged, parents may be able to contribute ideas for field experiences which the teachers may not have thought of, especially when parents can offer practical help in gaining access to a field site or relevant expert. In one classroom a parent brought in a turkey from her uncle's farm after she learned that the teacher was helping the children grasp what a real live turkey looked like.

The opportunity to examine the documentation of a project in progress can also help parents to think of ways they might contribute their time and energy in their child's classroom. There are many ways parents can be involved: listening to children's intentions, helping them find the materials they need, making suggestions, helping children write their ideas, offering assistance in finding and reading books, and measuring or counting things in the context of the project.

5. Teacher research and process awareness

Documentation is an important kind of teacher research, sharpening and focusing teachers' attention on children's plans and understandings and on their own role in children's experiences. As teachers examine the children's work and prepare the documentation of it, their own understanding of children's development and insight into their learning is deepened in ways not likely to occur from inspecting test results. Documentation provides a basis for the modification and adjustment of teaching strategies, and a source of ideas for new strategies, while deepening teachers' awareness of each child's progress. On the basis of the rich data made available through documentation, teachers are able to make informed decisions about appropriate ways to support each child's development and learning.

The final product of a child's hard work rarely makes possible an appreciation of the false starts and persistent efforts entailed in the work. By examining the documented steps taken by children during their investigations and representational work, teachers and parents can appreciate the uniqueness of each child's construction of his or her experience, and the ways group efforts contribute to their learning.

6. Children's learning made visible

Of particular relevance to American educators, documentation provides information about children's learning and progress that cannot be demonstrated by the formal standardized tests and checklists we commonly employ. While U.S. teachers often gain important information and insight from their own first-hand observations of children, documentation of the children's work in a wide variety of media provides compelling public evidence of the intellectual powers of young children that is not available in any other way that we know of.

Conclusion

The powerful contribution of documentation in these six ways is possible because children are engaged in absorbing, complex, interesting projects worthy of documentation. If, as is common in many traditional classrooms around the world, a large proportion of children's time is devoted to making the same pictures with the same materials about the same topic on the same day in the same way, there would be little to document which would intrigue parents and provide rich content for teacher-parent or child-parent discussion!

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Father/Male Involvement in Early Childhood Programs

Brent A. McBride and Thomas R. Rane

Parents, educators, researchers, and policymakers all assert the value of positive home-school partnerships. This focus on parental involvement in school settings comes at a time when early childhood programs increasingly consist of children from single-parent households, recombined or blended families, foster-parent homes, extended families with relatives, or a variety of other family situations (Epstein, 1988). A major challenge for family support professionals working in early childhood settings is to restructure program policies and practices aimed at increasing parent involvement to reflect the new realities of family structure, lifestyle, and ethnic characteristics. This effort is crucial as an increasing number of states and local public school systems move toward offering pre-kindergarten programs for children from economically disadvantaged and "high-risk" backgrounds (Karweit, 1993).

Father/Male Involvement in Early Childhood Settings

An important yet often overlooked strategy in the effort to increase parent involvement in early childhood programs is involving fathers or other significant male role figures. The notion that all fathers of children from low-income and high-risk backgrounds absent themselves from child rearing is a myth that permeates program development efforts in this area. For example, in a recent study of a pre-kindergarten at-risk program, McBride and Lin (in press) found that a majority of the mothers surveyed reported their children had regular and consistent interaction with a father or other male role figure despite the high proportion of single-parent families being served by the program. In a nationwide survey of Head Start programs serving low-income families, Levine (1993) found that a man is present (whether the father, mother's boyfriend, or other male relative) in approximately 60 percent of Head Start families. Furthermore, in a similar nationwide survey of Head Start programs, Gary et al. (1987) found that the majority of parents and staff members felt that emphasis should be placed on getting Head Start fathers involved in the program.

The myths and stereotypes surrounding men in low-income and high-risk households have had a significant negative impact on policies relating to programs that benefit disadvantaged families (Levine, 1993). Generally these policies identify "parents" as targets for their outreach initiatives, yet program implementation typically discourages the participation of men in parent involvement activities. The lack of initiatives designed to encourage male involvement in pre-kindergarten programs for children who are at risk for later school failure does not build upon the strengths that many of these men can bring to the parenting situation—strengths that can be utilized in the development of effective home-school partnerships. When men become actively involved, they can have positive impacts on many aspects of children's development (see Lamb, in press, for a comprehensive review).

Getting Fathers/Males Involved

Given the support for increased involvement of parents in their children's schooling and the positive contributions men can make to their children's development, it is important to reach out specifically to fathers or other significant males in parent involvement efforts for pre-kindergarten and early childhood programs. In doing so, however, it is important to recognize at the outset that several barriers must be overcome in order to successfully get men more involved. Levine (1993) has outlined four factors that constrain Head Start and state-funded pre-kindergarten programs from encouraging father involvement: (1) fathers' fears of exposing inadequacies; (2) ambivalence of program staff members about father involvement; (3) gatekeeping by mothers; and (4) inappropriate program design and delivery. Each one of these barriers must be overcome as programs attempt to encourage and facilitate increased involvement of fathers in their children's school experiences.

McBride and his colleagues (McBride, Obuchowski, & Rane, 1996) have identified several key issues that need to be explored as early childhood programs struggle to build stronger home-school partnerships through the development and implementation of parent involvement initiatives targeted at men.

1. Be Specific about Goals

Early childhood educators need to be specific in their reasons for developing parent involvement initiatives targeted at men. Prior to developing such initiatives, educators must ask themselves why they think such efforts are important and how they can enhance the services being provided to children and families. There are clear benefits to encouraging male involvement in early childhood programs for enrolled children, their families, and the programs in general. Focusing on male involvement because it is currently a "hot" social issue increases the likelihood that such efforts will wane when the next big issue emerges.

2. Acknowledge Resistance to Initiatives

Not everyone will be committed to the concept of parent involvement initiatives targeted at fathers or other significant males. The lack of male involvement and "responsible"

fathering behaviors is often cited as a major reason for children's later school failure, and many people will question why resources should be targeted at these men when they are viewed as the primary cause of the problems facing children. This resistance may come from mothers, teachers, school administrators, and community leaders. Since support from these groups is critical to the success of parent involvement initiatives designed for men, educators will need to build a strong rationale for developing such initiatives, a rationale that can be clearly articulated to these groups in order to gain their support for such efforts.

3. Identify the Significant Male Role Figures

Educators will need to be specific about whom to target in their efforts to encourage male involvement. Research data have indicated that children growing up in low-income and single-parent homes often have regular and consistent interactions with a father figure, although not necessarily their biological father. Focusing efforts on biological fathers will exclude a large proportion of men who play significant roles in the lives of these children. The key for educators will be to identify who the men are in the lives of these children who can then become targets for these efforts.

4. Provide Training and Support Services for Staff

Most early childhood educators have received little, if any, formalized education and training in the area of parent involvement. This is especially true in the area of male involvement in early childhood programs. If such efforts are to be successful, teachers will need staff development and in-service training experiences that will allow them to develop a knowledge base from which to develop and implement initiatives that are designed to encourage male involvement in their programs.

5. Train Female Facilitators To Accept Male Involvement

Although having male staff members provide leadership to initiatives designed to encourage male involvement in early childhood programs would be desirable, such expectations are not always realistic because the majority of professionals in this field are female. Women can be successful in these efforts, but they must acknowledge and build upon the unique strengths that men bring to the parenting realm and be sensitive to differences in the ways in which men and women approach parenting and interacting with young children.

6. Don't Neglect Mothers

Research has indicated that mothers tend to be the "gatekeepers" to their children for fathers or other significant male role figures. As educators develop initiatives to encourage male involvement, they must not do so at the expense of efforts targeted at mothers. Mothers need to be involved in the development of these efforts from the beginning. They need to be made aware of why resources are being put into developing these activities and how they and their children will benefit. Eliciting the support and involvement of mothers in developing such initiatives can help insure the initiatives' success.

7. Go Slowly

As with any other initiative, early childhood educators must proceed slowly in their efforts to encourage male involvement in their programs. The key to success for these efforts is in building a male-friendly environment that facilitates a culture of male involvement in the program. However, building such a culture is a long-term process, and educators shouldn't expect too much, too soon. They should start slowly and build upon their successes.

8. Don't Reinvent the Wheel

Many early childhood programs serving children who are at risk for later school failure already include comprehensive parent involvement components, although they tend to be targeted primarily at mothers. When developing initiatives for male involvement, educators should first evaluate the parent involvement components already in place and explore how they may be adapted to reach out to men in order to meet their unique needs.

Conclusion

Successful resolution of these issues will provide early childhood programs with a solid foundation from which to develop and implement parent involvement initiatives designed for men. Through such initiatives, men can become valuable resources as educators struggle to build stronger home-school partnerships aimed at strengthening family units that will help young children achieve success as they progress through the educational system.

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ERIC CLEARINGHOUSE ON URBAN EDUCATION

DIGEST

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HISPANIC PRESCHOOL EDUCATION: AN IMPORTANT OPPORTUNITY

Young children learn many language, social, and practical skills in preschool that benefit them immediately and also enhance their chances for future achievement. For poor children, preschool helps to offset the social, emotional, physical, and cognitive burdens that can result from their living situation. For those who speak little or no English, preschool can provide a valuable bilingual education (Kagan, 1995). In recognition of the benefits of early childhood education, increased Federal funds have recently become available for preschool programs and for incorporating transition-to-school activities into them (Kagan & Garcia, 1995).

Nevertheless, Hispanic parents have been slow to overcome their historical reluctance to turn their young children over to non-family members for care. Nearly half of Hispanic mothers stay at home to raise their children. Even parents who need child care frequently prefer using relatives rather than a preschool, given the size and strength of extended Hispanic families and traditional deep concerns about child safety (Fuller et al., 1994). Also, many Hispanic families cannot afford private preschools. According to one survey, with findings similar to many others, less than 26 percent of the 313,000 Hispanic 3- and 4-year-old children attended nursery school in 1994, whereas nearly 43 percent of all children in the U.S. did so (Bruno, in press). Thus, Hispanic children may enter kindergarten without the academic preparation that their peers have, and without the good educational start that would provide them with a positive attitude toward school and a sense of themselves as intellectual beings (Valdivieso & Nicolau, 1992). Indeed, the dropout rate among Hispanic youth is among the highest of the ethnic groups in the U.S., and many of those who do graduate from high school have not acquired the kinds of skills that will lead to greater employment opportunities.

The educational boost that preschool provides is particularly important for the one-quarter of Hispanic families that are poor by Federal guidelines. While Hispanic families are like others in that they want their children to succeed in school, poverty can seriously impede children's academic success and their parents' ability to actively foster high achievement.

This digest describes strategies and programs specially designed to meet the early education needs of Hispanic children, particularly those whose families suffer from poverty. It also reviews efforts to recruit the children; to involve their parents in activities that will enhance their children's learning; and to provide parents with literacy, job, and other skills training, and a range of social services. Hundreds of such programs, developed by community leaders and educators around the country, are now operating.

The review here examines preschool experiences in situations where the vast majority of families are Hispanic, but it offers insights applicable to preschools in communities with only a small Hispanic population. It is limited to programs committed to strengthening children's knowledge of the various Hispanic cultures and the Spanish language as they teach English, although not all preschool programs use a bilingual strategy to teaching English literacy.

Outreach and Parent Involvement Strategies

Despite the initial reluctance of Hispanic families to send their children to preschool, many do ultimately decide on enrolling them as a result of persuasive and culturally sensitive recruitment strategies. Similar strategies also promote parent involvement during their children's school attendance. In fact, parent involvement is frequently the only common denominator among successful education programs for all children (Lewis, 1993).

Preschool recruiters in the Hispanic community are not necessarily associated with a particular school. They may be church leaders, members of community-based organizations (CBOs) or job training staffs, social service providers, or even pediatricians, but they share the goal of ensuring that young children receive an effective early education (Lewis, 1993).

It is best for recruiters to communicate with parents about the benefits of preschool using the parents' native language if their English language skills are limited, in person, on the telephone, and in notes. Using their native language, even when parents are bilingual, promotes trust as well as better communication. Meetings should be held in conveniently located and neutral locations (i.e., not schools or other possibly intimidating environs), and child care, transportation, and snacks should be provided. Scheduling should take parents' work schedules into account. Face-to-face contact is most effective, and home visits can be useful. Obviously, parents should not be made to feel as if their parenting is inadequate, or that there are not benefits to be derived from drawing on an extended family for child rearing. In fact, some families may assume that grandparents are included in all invitations from school. Recruiters should treat families as equals, be patient, and expect to have several interactions before families become willing to enroll their children in preschool ("Considering Ethnic Culture," 1993; Blakes-Greenway, 1994; Landerholm, Rubenstein, & Losch, 1994; Espinosa, 1995).

It is important for recruiters to recognize that some parents, particularly immigrant and poor parents, may not agree that children will benefit academically from early childhood education. Rather than try to change parents' beliefs, recruiters can initially emphasize advantages of preschool that respond to the way parents actually think about child behavior

(Zepeda & Espinosa, 1988). The Hispanic Development Project has produced parent materials on cognitive development in English and Spanish that offer useful suggestions for ways to help their children learn while they are engaging in everyday activities with them (Nicolau, Ramos, & Palombo, 1990).

Showing parents how the whole family can benefit from their children's preschool attendance is also an effective recruiting strategy. Providing English language or other skills development classes for adults can bolster parents' belief in the value of the entire program, of which preschool is but one part, and can provide them with an education that can significantly improve the quality of their lives (McCollum & Russo, 1993). Project FLAME, a Federally-funded urban program for Mexican American families, not only teaches literacy skills to the parents and preschoolers, but encourages parents to draw on these skills for personal empowerment when dealing with the various public agencies in their lives. Other attractive parent programs include workshops on topics of great relevance, such as parenting skills, gang awareness, communication and study skills, and vocational training (McLeod, 1996; Espinosa, 1995).

Offering comprehensive services, including case management, can be an important inducement to parents to enroll their children (McCollum & Russo, 1993). Even simply providing parents with information about community medical and social services and with forms they need (i.e., food stamp applications) can promote interest in preschool programs. Surveying parents about their child rearing concerns and soliciting their views on what should be included in the preschool program are ways to demonstrate that their ideas are valued and will be carefully considered (Blakes-Greenway, 1994).

More general recruiting strategies, usually undertaken by preschools themselves, are media releases (in English and Spanish) and brightly colored leaflets distributed to churches, CBOs, and other places where parents can be found. Word-of-mouth is also effective, and parents can be encouraged to share the information about preschools that they receive (Nicolau & Ramos, 1990; (*Pequeñitos en Acción*, 1991).

Preschool Programs

Types

The term "preschool" is used to define a wide variety of programs in centers for young children. Some have educational components that consist of just a few minutes a day of direct instruction in skills building of any kind (sometimes delivered by a video presentation). Others use a carefully constructed age-appropriate academic curriculum that fills the day. Some have staffs with degrees in early childhood education and with state certification; others employ community members whose experience is limited to what they learned from rearing their own children.

Some preschools are profit-making, charge substantial tuition, and respond to a market demand in their program offerings. Others are non-profit, run on very little money by religious or community organizations, and consider their child care function sufficient to attract families.

While certain locally-funded preschools in poorer communities may suffer from a lack of resources of all types, those with Head Start, Even Start, and other government funding may provide a better education than even the most expensive private preschools (Kagan, 1995). Head Start, the largest public preschool program, provides free services to poor children through CBOs, and sets standards for required educational and social and health service components. Staff must help the children meet specific school readiness goals, although each Head Start school is free to design its own program. For example, one goal is to help students develop English literacy skills, but it is left to the individual school to decide whether to provide bilingual or monolingual instruction. Similarly, the local projects that comprise Even Start, a Federally-funded intergenerational literacy program, have a mandate to work with Head Start, but each is free to choose its own instructional strategy.

Goals

The most important goal of preschool programs is to develop "the whole child," but most programs are also concerned with serving families. A corollary aim is to prepare teachers and other care givers to work sensitively and effectively with children from diverse backgrounds (Villarreal, 1993).

For Children. Goal 1 of the National Education Goals Panel established a set of domains related to the school-readiness of young children that emphasizes overall development but also recommends the early acquisition of literacy skills and some general knowledge. The approach taken by programs to meet the goals may differ considerably in their emphasis, however. Some programs use the developmental approach advocated by the National Association for the Education of Young Children, focusing on personal, social, and intellectual development, rather than on academics or school readiness (*Pequeñitos en Acción*, 1991). Other programs are more concerned with ensuring that minority and Limited English Speaking students acquire the skills and knowledge that many other students have when entering school. Some programs use a preestablished curriculum, while others equip their teachers with the principles of child development, awareness of the cultures that children bring to the school, and the techniques of child observation, and then allow the teachers to create their own curriculum based on what the children already know (Williams, De Gaetano, Sutherland, & Harrington, 1985).

Regardless of emphasis, most aim to develop many of the following characteristics and competencies in their students (*Pequeñitos en Acción*, 1991; Villarreal, 1993; Kagan, 1995):

- A positive self-image.
- Social and emotional growth.
- Literacy and language development.
- Expansion of early concepts, independent thinking, and problem-solving skills.
- Cognition and general knowledge.
- Creativity.
- Interest in the natural world, and aesthetic appreciation and expression.
- Respect for human dignity, cultural and linguistic diversity, and the rights of others.
- Motor development.

For Families. Helping families learn how to help their children is universal among programs, but limited resources frequently force educators to choose among possible activities. As a result, staff is likely to believe that its first responsibility is to the children, not parents, when choices must be made.

Also, intensive family programs that respond to the needs of parents challenged by poverty and other problems may simply be beyond the ability, and even the will, of most preschool staff. Nevertheless, early childhood educators and policy makers believe that preschool is the obvious place for two-generation service programs. Therefore, preschool programs are increasingly seeking partnerships with other community programs and additional public and private funds (Kagan, 1995).

Program Philosophy

It is generally agreed that young children learn most readily when instruction builds on what they already know from experience. Therefore, preschools that serve bilingual and multicultural students draw on the children's native cultures and languages. The philosophy of Project ALERTA, designed for use in a variety of preschool settings, is representative of many other programs in that it "rejects the notion that bilingual perspectives or perspectives that are multicultural are simple additions to a preconceived program. Instead, it maintains that the development of such perspectives pervades the total process of human growth and development...multiculturalism and bilingualism must be interwoven with the entire structure of the program in order to have real meaning for the persons—children or adults—participating in it" (Williams et al., 1985, p. ix). For example, in Hispanic families there are roles for children of all ages, siblings are not separated by age, and they are used to taking care of each other. Therefore, multicultural preschools can create opportunities for multi-age groupings where older children can develop caring skills for younger children and younger children can become accustomed to looking up to role models ("Considering Ethnic Culture," 1993).

Basic Skills Programs

Most early education programs emphasize literacy development—monolingual in English or Spanish, or bilingual—in the belief that it is the key to overall cognitive development. Thus, the most effective instructional programs consist of a high level of functional communication between teachers and students, and collaborative learning where small groups of children work together on a project or to solve a problem. These programs discourage lecturing by teachers and individualized work tasks that limit student speech (Garcia, 1995). Some preschool programs integrate teaching skills to children and parents together in the belief that both will learn more readily when doing so together.

One effective literacy activity for children and adults is story telling and writing. Students create stories based on their culture and experiences with words, and illustrate them by drawing and cutting and pasting pictures from magazines. For parents unaccustomed to reading to their children, this lesson provides a way to ease them into an unfamiliar but important home learning activity (Landerholm et al., 1994). At a Chicago preschool, family science lessons are planned around food so that Limited English Speaking students can see the items being discussed, learn their English names through multiple repetitions by the teacher, and learn the lesson even though much of it may be in an unfamiliar language (Landerholm et al., 1994).

Bilingual Instruction

The primary goal of bilingual preschool programs is to help children develop their first language skills as fully as possible, and to help them learn a second language, which they may not know at all upon entering preschool or may already be using to some extent. An example of this approach is *Un Marco Abierto*, which operates according to the belief that teaching in a child's first language builds esteem and pride in family and community (*Pequeñitos en Acción*, 1991). The National Association of the Education of Young Children has a particularly strong position on the importance of strengthening children's native language; a recent position paper asserts that "loss of their home language may result in *the disruption of family communication patterns, which may lead to the loss of intergenerational wisdom; damage to individual and community esteem; and the children's potential nonmastery of their home language or English*" ("NAEYC Position Statement," 1996, p. 5).

A common philosophy, exemplified by Project ALERTA, is that language learning is never taught separately from the content of learning activities. While children may use more than one language in a conversation while they are learning a second language, teachers use only one language per instructional sequence, acting out meanings as they speak to facilitate comprehension. Gradually, through repetition of words and phrases used in lessons based on their experiences and prior knowledge, children's comprehension increases (Williams et al., 1975).

Staff Qualifications and Development

Preschool staff members may vary widely in their education level, training, and experience, although schools that receive public funding may have to employ teachers who meet certain credentialing criteria. Small preschools in poor areas serving predominantly minority children are more likely than others to have inadequately trained staff because they have access to fewer community resources and parents can pay only minimal amounts for enrollment. Their staffs are likely to be comprised of female community members, some of whom do not have even a high school diploma and many of whom receive neither general child care training nor direction about curriculum or learning activities (Reginatto, 1993). Some staff without formal teacher education training do complete a special preschool education program, however.

Educators agree that, regardless of other competencies, teachers of non-native English speaking children should be able to communicate in the children's home language and must be sensitive to their cultural background because adults' cultural background affects the ways they communicate with children (Lewis, 1993; "NAEYC Position Paper," 1996). Most educators also believe that at least some members of the staff must share the native cultures of the students.

Since it is inevitable that some teachers have misconceptions about the characteristics of particular population groups, and even prejudices, it is useful to confront such beliefs directly in training in order to dispel them (Nicolau & Ramos, 1990). Becoming a role model for the celebration of cultural diversity, and establishing a classroom climate of acceptance, respect, and self-appreciation, should be key functions of teachers (Reginatto, 1993).

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Along with more traditional preschool coursework, pre- and inservice training should include strategies to improve family literacy (Mulhern, Rodriguez-Brown, & Shanahan, 1994). Some specific training areas for working with children include (*Pequeñitos en Acción*, 1991; McLaughlin, Blanchard, & Osanai, 1995; "NAEYC Position Paper," 1996):

- Working with young children.
- Language acquisition.
- Second-language learning.
- Use of translators.
- Working with diverse families.
- Sociolinguistics.
- Assessment of language development.
- Cross-cultural communication.
- The politics of race, language, and culture.
- Community involvement.

Conclusion

Hispanic parents should be encouraged to enroll their children in preschool, both to provide them with important school readiness skills and to provide their families with a range of services that will improve all aspects of their lives. The programs must be family-friendly and affordable, and they must provide culturally sensitive, bilingual, and educationally rich experiences for the children.

— Wendy Schwartz

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ERIC DIGEST
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Lasting Benefits of Preschool Programs

Lawrence J. Schweinhart

More than other educational innovations, high-quality programs for young children living in poverty have demonstrated the promise of lasting benefits and return on investment. Various longitudinal studies have documented such benefits. Some of these studies have been *intensive*, i.e., they used a strict experimental design but studied fewer than 500 study participants at a single site. Others have been *extensive*, i.e., they used a less strict design but studied more than 500 study participants at multiple sites or over several years. Generally speaking, the results of intensive studies are clearly valid for the subject group studied but are harder to generalize to a larger population. The reverse is true for extensive studies. Both types of studies are important to well-informed public policy development.

The programs examined in the longitudinal studies reported in this digest served young children living in poverty who were at special risk of school failure. Children entered the programs at some time before age five and remained in them for at least one school year. The studies examined a variety of high-quality early childhood programs that included either classes for children or home visits to parents and children or both. Some of the studies lasted only a few years, while others followed program participants into adulthood.

Effects on School Performance

All of the studies that collected data on early childhood *intellectual performance* found that their program groups had significantly better intellectual performance than their no-program groups during the program and for a year or two thereafter. A comprehensive meta-analysis identified 50 Head Start studies that found evidence of immediate improvements in children's intellectual and socioemotional performance and health that lasted several years (McKey et al., 1985).

Some educators and others believe that, while preschool programs for children in poverty have positive effects, these effects *fade away* over time. However, clear evidence of the gradual disappearance of effects has been found only for gains in children's scores on tests of their intellectual performance, and not for other positive effects of programs.

Several studies, including those by Gray et al. (1982), Irvine (1982), Levenstein et al. as reported in the Consortium for Longitudinal Studies (CLS) (1983, p.237-263), and Schweinhart et al. (1993), found that significantly fewer program participants than nonparticipants in a matched control group were *ever placed in special education classes*. In three studies by Gotts (1989), Irvine (1982), and Palmer as reported in the CLS (1983, p.201-236), significantly fewer program participants than nonparticipants were *ever retained in grade*.

In several studies (Fuerst & Fuerst, 1993; Gotts, 1989; Schweinhart et al., 1993), the program group had a significantly higher *high school graduation rate* than the no-program group. When these findings were examined by gender, it was found that girls who had participated in the program had significantly higher graduation rates than girls who had not participated, but that a similar difference between participants and nonparticipants was not evident for boys. Nevertheless, in the one study with relevant data for adults (Schweinhart et al., 1993), men who had been program participants had significantly higher monthly earnings, higher rates of home ownership, and fewer lifetime arrests than men who had not participated in the program.

Effects on Community Behavior

One intensive study, the High/Scope study as reported by Schweinhart et al. (1993), found evidence that program participation had positive effects on adult crime, earnings, wealth, welfare dependence, and commitment to marriage. For example, program group members averaged significantly fewer *criminal arrests* than the no-program group—2.3 versus 4.6 arrests. Only 12% of men who had participated in the program had been arrested five or more times, compared to 49% of men who had not participated in the program. Only 7% of the program group had ever been arrested for drug dealing, significantly fewer than the 25% of the no-program group. In the High/Scope study and one other (Lally et al., 1988), program-group members spent significantly less time on probation than did no-program group members.

The High/Scope study found that 29% of those who had participated in the program reported *monthly earnings at age 27* of $2,000 or more, significantly more than the 7% of nonparticipants who reported such earnings. For men, the difference was due to better paying jobs: 42% of participants as compared to only 6% of nonparticipants reported such monthly earnings. For women, the difference was in employment rates: 80% of participants but only 55% of nonparticipants were employed at the time of the age-27 interview. Significantly more of the program group than the no-program group *owned their own homes* (36% versus 13%) and *owned second cars* (30% versus 13%). Significantly fewer program group members than no-program group members *received welfare assistance or other social services* as adults (59% versus 80%). The study found that 40% of

women who had participated in the program, but only 6% of those who had not, were *married at age 27*; while 57% of the births to program females were *out-of-wedlock*, 83% of the births to no-program females were out-of-wedlock.

Return on Investment

The 1993 Schweinhart et al. study also involved a systematic analysis of the costs and benefits of the preschool program and its effects, expressed in constant 1992 dollars discounted annually at 3%. The program returned to taxpayers $88,433 per participant from the following sources:

- savings in schooling, due primarily to reduced need for special education services, and despite increased college costs for preschool-program participants;
- higher taxes paid by preschool-program participants because they had higher earnings;
- savings in welfare assistance; and
- savings to the criminal justice system and to potential victims of crimes.

With most participants attending the program for two school years, the average cost of the program was $12,356 per participant. Thus, the program provided taxpayers a *return on investment* of $7.16 on the dollar, better than most other public and private investments. The program cost $7,252 per child per year, primarily because it provided one teacher for every five children. It probably would have had the same effects if it had had one teacher for every eight children and would then have cost $5,000 per child per year. Spending less than that, however, would have jeopardized the program's effectiveness and return on investment.

Only High-Quality Programs Have Lasting Effects

These studies suggest that high-quality programs for young children produce significant long-term benefits because they empower young children, parents, and teachers.

High-quality programs *empower young children* by encouraging them to initiate their own learning activities. The idea that young children initiate their own learning activities rather than act as mere passive recipients of information from others is central to developmentally appropriate practice for young children. Such active learning encourages children to solve their everyday intellectual, social, and physical problems and to assume a measure of control over their environment.

Such programs *empower parents* by involving them as partners with teachers in supporting their children's development. Most of the preschool programs found to have long-term benefits included weekly home visits or emphasized parent involvement in other ways. The programs strengthened parents' ability to view their children as able, active learners and to support their children's development of a sense of control and of intellectual, social, and physical abilities.

Such programs *empower teachers* by providing them with inservice curriculum training and supportive curriculum supervision, which help them engage in practices that support children and parents. Such training is most successful in promoting quality when agencies have supportive administrations and trained curriculum specialists on staff who provide teachers with hands-on workshops, observation and feedback, and follow-up sessions (Epstein, 1993).

Too often, our response to the intractable problems of poverty, crime, drug abuse, unemployment, and welfare dependence is frustration and even despair. Whatever we do, it seems these problems will not go away. Nor will high-quality pre-school programs make them go away entirely. But the evidence suggests that providing such programs will significantly reduce the magnitude of these problems; and that is reason enough to provide them.

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School Readiness and Children's Developmental Status

Nicholas Zill, Mary Collins, Jerry West, and Elvie Germino Hausken

Kindergarten is now a nearly universal experience for children in the United States, with 98% of all children attending kindergarten prior to entering first grade. However, the population of children that comes to kindergarten is increasingly diverse. Growing numbers of children in the United States come from different racial, ethnic, and cultural backgrounds; family types; parent education levels; income strata; and language backgrounds. The majority of children come to kindergarten with some experience in center-based programs (such as child care centers or preschools), but the percentage of children with such experience and the quality of these experiences vary across the backgrounds and other characteristics listed above.

Schools in the United States are expected to respond to this diversity in children's backgrounds and educational needs by providing all children with appropriate activities and instruction to ensure that each child begins his or her schooling with a good start. Knowing the range of developmental accomplishments and difficulties that children bring with them when they arrive at kindergarten can help us understand the demands being placed on schools to meet the needs of the entering children. Indeed, some of the difficulties discussed here are not experienced as difficulties until children enter school.

Parents of a national sample of 4,423 children from 3 to 5 years of age who had not yet started kindergarten were asked about specific accomplishments and difficulties of their children. Parents, usually the mother, were asked to rate how well their child demonstrated behaviors indicating emerging literacy and numeracy skills, such as pretending to read stories or counting to 20, and small-motor skills, such as buttoning clothes and holding a pencil properly. Parents were also asked to rate the extent to which their child showed signs of difficulties in physical activity or attention, such as restlessness and inattention, speech difficulties, and less than optimal health. These data were collected in early 1993 as part of a U.S. Department of Education study (Zill et al., 1995).

Accomplishments and Difficulties

Three- to five-year-olds. The percentage of children displaying signs of emerging literacy and small-motor skills increased with age within the 3- to 5-year-old population and within months of age among 4-year-olds. For example, the percentage of preschoolers reported as able to write their own name more than tripled between ages 3 and 4, while the percentage recognizing most letters of the alphabet more than doubled. Other accomplishments showed more moderate age differences. Developmental difficulties showed much smaller changes across ages, and difficulties in some developmental areas showed no change.

More girls than boys demonstrated each of the literacy and small-motor skills covered in the survey, and more boys than girls exhibited signs of difficulties with physical activity, attention, or speech. Though differences between boys and girls were widespread, they were not large.

Hispanic preschoolers were reported to show fewer signs of emerging literacy and more indication of difficulties with physical activity or attention, and to be in less good general health than White or Black children. Controlling for related risk factors, such as a mother with limited education and minority language status, reduced these ethnic differences but did not eliminate them. Black preschoolers showed fewer signs of emerging literacy and were more likely to be reported as in less than good health than White preschoolers. Differences between races were wholly accounted for by related risk factors, such as low maternal education, poverty, and single parenthood.

Four-year-olds. A majority of the 4-year-olds in the study displayed each of the small-motor skills and signs of emerging literacy asked about in the survey. The proportion of children displaying each of these behaviors varied greatly across specific accomplishments, however. More than 9 out of 10 were able to button their own clothes and hold a pencil properly, and more than 8 out of 10 were able to identify the primary colors by name. Fewer, about 6 in 10, could count to 20 or recognize most letters of the alphabet.

Much smaller proportions of preschoolers exhibited any developmental difficulties, although a substantial minority displayed signs of difficulties with physical activity or attention. At age 4, nearly 3 in 10 were reported to be very restless and fidgety and nearly 1 in 4 to have short attention spans. Nearly 1 in 8 was reported by their parents to be in less than very good health. About 1 in 13

were reported to stutter, stammer, or speak in a way that is not understandable to a stranger.

Family Risk Factors and 4-Year-Olds

Sociodemographic risk factors that have been found to be associated with problems in learning after children start school are also correlated with the accomplishments and difficulties children bring with them when they arrive at kindergarten. Five family risk factors were examined:

- mother has less than a high school education;
- family is below the official poverty line;
- mother speaks a language other than English as her primary language;
- mother was unmarried at the time of the child's birth; and
- only one parent is present in the home.

Half of today's preschoolers are affected by at least one of these risk factors, and 15% are affected by three or more of them.

The risk factors are found to be associated with fewer accomplishments and more difficulties in children, even after other child and family characteristics are taken into account. The relative importance of individual risk factors varies across developmental domains. Nevertheless, low maternal education and minority language status are most consistently associated with fewer signs of emerging literacy and a greater number of difficulties in preschoolers.

Attending Head Start, prekindergarten, or other center-based preschool programs was linked to higher emerging literacy scores in 4-year-olds. This correlation remained statistically significant when other child and family characteristics were taken into account. This benefit of preschool attendance accrued to children from both high-risk and low-risk family backgrounds. On the other hand, preschool attendance was found not to be associated with fewer behavioral or speech difficulties or with better health status in preschoolers.

Conclusion

The results of the study point to a need for innovative approaches in providing early education services for children from low-socioeconomic circumstances. As previous studies have shown, existing preschool programs have beneficial effects in the area of emerging literacy and numeracy. But they do not appear to be ameliorating the behavioral, speech, and health difficulties of preschoolers.

The survey results also emphasize the value of a multifaceted concept of educational risk. Five different risk factors were employed in the present study. All were found to have some relationship to preschoolers' accomplishments and difficulties, although the pattern of relationships varied across developmental domains. Many observers believe that low family income is the key factor behind educational failure, but the results of this research do not support this view. When compared to low family income, the risk factors of low maternal education, minority language status, and family structure were often as good or better predictors of the child's developmental accomplishments and difficulties.

By showing the considerable variation that exists in the accomplishments and difficulties of children about to start school, the study highlights the challenges that kindergarten teachers face in meeting the needs of children who are not only demographically but also developmentally diverse. Teachers must maintain the interest and promote the growth of children who have already demonstrated signs of early literacy and numeracy while simultaneously encouraging the development of these behaviors in children who have not yet acquired them. Similarly, they must meet the needs of children with difficulties while reserving sufficient attention and effort for those with few or no difficulties. Although there has always been variation in the characteristics of children entering kindergarten, the commitment to meeting the educational and developmental needs of all children in an increasingly diverse society presents great challenges to teachers, schools, and communities.

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Goal 2: School Completion

By the year 2000, the high school graduation rate will increase to at least 90 percent.

Objectives:

- The Nation must dramatically reduce its school dropout rate, and 75 percent of the students who do drop out will successfully complete a high school degree or its equivalent; and
- The gap in high school graduation rates between American students from minority backgrounds and their non-minority counterparts will be eliminated.

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ERIC DIGEST

1995 EDO-CG-95-21

Assessing Employability Skills

Thomas H. Saterfiel and Joyce R. McLarty

The term *employability skills* refers to those skills required to acquire and retain a job. In the past, employability skills were considered to be primarily of a vocational or job-specific nature; they were not thought to include the academic skills most commonly taught in the schools. Current thinking, however, has broadened the definition of employability skills to include not only many foundational academic skills, but also a variety of attitudes and habits.

In fact, in recent usage, the term *employability skills* is often used to describe the preparation or foundational skills upon which a person must build job-specific skills (i.e., those that are unique to specific jobs). Among these foundational skills are those which relate to communication, personal and interpersonal relationships, problem solving, and management of organizational processes (Lankard, 1990). Employability skills in this sense are valued because they apply to many jobs and so can support common preparation to meet the needs of many different occupations.

The concept of employability skills originated with educators, primarily those working on programs specifically designed to facilitate employment (e.g., vocational rehabilitation, Job Training Partnership Act). Employers, although the primary determiners of the skills that will actually enable an individual to acquire and retain a job, have traditionally focused on job-specific skills (e.g., those needed to spot weld or prepare a sales report). Assessments for employment, where used, most frequently have consisted of general ability and personality tests supplemented by job-specific assessments (e.g., work samples).

In recent years, that picture has changed dramatically with ever growing numbers of employers assessing foundational skills, primarily in reading and mathematics, prior to hiring (Greenburg, Canzoneri, and Straker, 1994). This is probably due to the joint effects of an increasing demand for these skills on the job and employer dissatisfaction with the levels of those skills demonstrated by applicants. Even today, however, educators show greater interest in employability skills assessment than do employers. This is possibly due to employer concerns about the legal implications of any assessment that might have adverse impact (a detrimental effect on hiring rates) on gender or ethnic minority groups (Uniform Guidelines, 1978).

Much of the current impetus to teach and assess employability skills results from concerns about this country's ability to compete in the world economy. Seminal work by Carnevale (Carnevale, Garner, and Meltzer, 1990) was followed by efforts by both public and private agencies to address the strongly felt need to improve the work-related skills of those entering the workforce. The work begun by the Department of Labor and its Secretary's Commission on Attaining Necessary Skills (SCANS) is continuing, with plans to validate the skills they identified (U.S. Department of Labor, SCANS, 1992). Development of assessments for these skills will follow this effort.

American College Testing's Center for Education and Work, through its Work Keys System, has developed large-scale assessments for seven employability skill areas: Reading for Information, Applied Mathematics, Listening, Writing, Locating Information, Applied Technology, and Teamwork. Assessments for additional skill areas are currently in development (American College Testing, 1994). The state of Ohio combined its job-specific Ohio Competency Assessment Program (OCAP) tests with the Work Keys assessments for a comprehensive assessment of foundational and specialized skills. The state of Tennessee is involving its high school seniors in the Work Keys System to help it meet the employability skills needs of all its students.

Other notable efforts include the C^3 project in Fort Worth, Texas (Fort Worth Independent School District, 1992) and the portfolio development and evaluation undertaken by the state of Michigan (Michigan Occupational Information Coordinating Committee, 1992). These projects are distinguished by extensive use of business input for development and implementation. Although neither of these projects currently offers assessments for use by outside agencies, both are sources of valuable information on the development of employability skills.

Of the many other efforts to provide employability skills assessments, the largest group focus on the basic literacy level, as did the earliest work on employability skills. Educational Testing Service, building on the work of the National Adult Literacy Study funded by the U.S. Department of Education, publishes tests measuring

lower-level reading, mathematics, and document literacy. Additionally, tests once used only for assessing lower-level adult skills for academic purposes have now also been pressed into service to meet the growing demand for employability skills assessment (e.g., TABE, CASAS).

When selecting an approach for assessing employability skills, several criteria must be kept in mind. First, the validity of an employability skills assessment rests on job analysis: a clear and validated relationship should exist between the assessment and the skills required for one or more jobs. This relationship should be based on a systematic analysis of the skills and skill levels required for the job(s) in question. It is not sufficient to observe, for example, that "reading" is required for the job; one must know which tasks require reading and the type and level of reading skill needed. The assessment must clearly mirror the nature of the skill required, and the score attained on it must accurately reflect the examinee's level of that skill.

Second, the skill assessed should be teachable. Assessment of "intrinsic abilities" is valuable both for employers attempting to predict future job performance and for counselors working with students to identify jobs suited to their interests, values, and self-concepts. However, the essence of employability skills is preparation for the job, so the focus of employability skills assessments should be directed to those aspects of the relevant skills that can be taught. Since not all employability skills can be neatly packaged in the traditional academic disciplines, educators must make special efforts to ensure that they teach all the needed employability skills.

The degree to which preparation for the workforce (i.e., employability skills development) and preparation for postsecondary education are congruous has been under considerable discussion. It is too early to determine whether integrated preparation for both provides as good a preparation for each as separate programs or, if not, at what point in a student's career separate programs should begin. Institutions using separate programs for preparation generally begin that differentiation at grade 10 or 11.

Finally, each assessment must be evaluated in the context of its purpose. If employers are going to use the scores to make personnel decisions, the employability skills assessment must meet strict reliability and validity standards, sufficient to provide a sound legal defense. This requires painstaking attention to the psychometric quality of the instrument, to the standardization of the administration, and to the accuracy of the scoring. However, if the purpose of the assessment is to guide instruction, relevant psychometric criteria are more relaxed. The advantage of assessments which employers may use for personnel decisions is that the results are of immediate use to the examinees in making the transition to the workforce. The advantage of assessments used only for low-stakes purposes is that they may be constructed with greater emphasis on providing instructionally relevant experiences to students. It is also important to recognize that assessment instruments are needed to support the information needs both of school-age students as they enter the workforce and of adults making transitions into, or within, the workforce at later stages in their lives.

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EDO-RC-94-5

October 1994

Cultivating Resilience: An Overview for Rural Educators and Parents

by Mary Finley

The positive concepts of resilience and protection are less familiar to rural educators and to policymakers than the negative concept of risk (as in "at-risk students"). Perhaps this state of affairs is the result of an appropriate and longstanding research effort to understand the prevalent threats to children's well-being. But when it comes to actually helping children, educators need to understand more clearly what goes *right* even in risky circumstances, and why. Recent research suggests things schools and communities can do to protect children against the very real threats that confront families and individuals.

This Digest interprets these findings for application in rural communities. The purpose here includes helping educators and policymakers to regard students not as problems to be "fixed," but as personalities to be *protected*—and in which to nurture internal *resilience* to the prevalent threats. Such a shift in thinking constitutes a radically new way of looking at an old phenomenon. Garmezy (1991, p. 428) puts it this way: "To think of the appropriate role [for the school] is to think of oneself as a protective figure whose task is to do everything possible to enhance students' competence." Competence includes the capacity to deal with external threats, and all children need to develop such competence.

At risk vs. Resilient—A Difference in Outlook

"At risk," a term borrowed from the field of medicine, is used educationally in a wide variety of definitions—at risk of not graduating from high school, at risk of developing alcohol and other drug abuse problems, at risk of failure in life. Through overuse the term loses meaning. One can easily show, for instance, that all children (indeed, all people) are at risk. Life inevitably entails threats, after all, no matter how comfortable one's circumstances.

But many educators are understandably suspicious of the negative implications of identifying and labeling children as being at risk for such conditions as "failure in life." Fortunately, researchers began studying infants born to at-risk families years ago. They have discovered, in fact, that many infants born into risky circumstances actually become healthy adults (Garmezy, 1993; Rutter, 1987; Werner & Smith, 1982, 1992). Some combination of circumstance and temperament helped these individuals to withstand the threats that life handed them.

Protective Factors

"Resiliency" is the construct used to describe the quality in children who, though exposed to significant stress and adversity in their lives, do not succumb to the school failure, substance abuse, mental health problems, and juvenile delinquency predicted for them (Linquanti, 1992). The presence of protective factors in family, school, and community environments appears to alter or reverse predicted negative outcomes and foster the development, over time, of resiliency.

Key protective factors found in families, schools, and communities are identified by Benard (1991):

- a caring and supportive relationship with at least one person;
- consistently clear, high expectations communicated to the child; and
- ample opportunities to participate in and contribute meaningfully to one's social environment.

Protective factors help develop resilient children, who exhibit the following characteristics (Benard, 1991):

- social competence that allows the individual to sustain relationships;
- use of problem-solving skills in daily life; and
- a clear sense of personal autonomy, purpose, and future.

Garmezy (1991, p. 427) insists that the changed thinking of educators needs to include "the proud awareness" that their work in classrooms and schools is "the most worthy of societal enterprises—the enhancement of competence in their children and their tailoring, in part, of a protective shield to help children withstand the multiple vicissitudes that they can expect of a stressful world." But where and how do rural schools begin to tailor a "protective shield"?

Where Do We Begin?

Across the nation, rural communities and schools differ dramatically from one another. No single set of prescriptions could possibly cover rural communities of Mexican Americans, African Americans, American Indians, Alaska Natives, or Appalachians. Though the rural poverty rate is high and many areas suffer economically, writers have observed that *rural communities persist*. Rural communities can be much more cohesive than urban or suburban neighborhoods; for instance, strong kinship ties are common in rural communities.

Sociologist James Coleman (1988) refers to the personal relationships in a community—particularly those that span the generations—as "social capital." Social capital represents connections among people in a given place that allow them to care for one another—to look out for each other's well-being and for the well-being of one another's children. Rural areas can develop their comparatively greater social capital to help strengthen more children and families against factors that might put them at risk.

Although comparatively little R&D effort has focused on rural communities, Werner and Smith (1992) summa-

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rize several useful principles based on their 40-year longitudinal study of disadvantaged children and families in Hawaii. These principles are interpreted, next, in the light of rural circumstances.

Set priorities. When resources are limited (as they are in many rural communities), efforts should be guided by an assessment of priority, based on the most potentially damaging local threats. The question of priorities is very much a local one. Which local circumstances pose the greatest threats and to whom? The diversity of rural communities means that priorities will vary.

Assess available capacity. As part of a community effort, schools need to be aware of—and use—existing services. The key idea to remember is that resiliency is best nurtured and ensured community-wide. A student who accesses protective factors anywhere in the community benefits the whole community—and, in fact, contributes to an increase in the community's social capital (Linquanti, 1992). Schools' efforts, in both formal and informal activities, must therefore protect existing support systems. In fact, they should be designed to enhance existing support systems.

Support and celebrate. Resiliency can be cultivated, according to the research, through a child's solid, meaningful connection with just one very caring individual (Benard, 1991). A child may connect with the right important individual in school, at church, at a youth or family center, at 4-H activities, or at a local clinic or agency. These people—in whatever capacity the child relates to them—become mentors (Cecil & Roberts, 1992; Flaxman, 1992). They give the community's children a secure basis for the development of trust, autonomy, and initiative; and the community should support their efforts prominently. Some staff training may be necessary for mentors, but genuine celebrations of the relationships between mentors and their protegés are also important.

Tear down turf boundaries. Obviously, jealously guarded institutional boundaries are not consistent with the theory and practice of cultivating resilience. Here is where rural communities have another advantage. Interdisciplinary arrangements between schools and social services first became operational in rural areas, where scarcity of resources necessitated collaboration. The trend to work with other agencies continues to grow, as reflected in the literature (see Luthiyya, 1993, ERIC/CRESS Digest EDO-RC-92-9).

Resources

Research on specifically rural interventions is scanty. The reference list below includes available resources that rural school leaders can review for ideas that have at least worked in urban settings. Benard (1991) and Linquanti (1992) provide particularly thorough introductions to the resiliency paradigm, both with extensive bibliographies. Crockett and Smink's (1991) guidebook on *mentoring* is excellent. Though few models for instituting a resiliency paradigm exist, Winfield's (1991) *framework for planning* school and community interventions can be adapted for any size school district. At the *classroom level*, Hodges (1993) and Cecil and Roberts (1992) provide good starting places for teachers.

A growing literature on service learning, which includes community-wide efforts and mentorships of the sort considered above, is also relevant when thinking about resilience, protection, and social capital. The aims of service learning relate very clearly to the protective factors described in this Digest. A three-volume resource series titled *Combining Service and Learning* (Kendall & Luce, 1990) features an extensive annotated bibliography, descriptions of many programs, consideration of implementation issues and dilemmas, and original articles on a variety of topics related to the policy and practice of service learning.

You can also contact the National Service-Learning Clearinghouse at 1/800-808-SERVE, via the Internet at serve@maroon.tc.umn.edu, and via their gopher server address, gopher.nicsl.coled.umn.edu (note that "gopher" is part of the address) for resources and "nuts and bolts" contact information about service learning efforts (contacts for hundreds of service learning programs are available).

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Drop-out Rates Among American Indian and Alaska Native Students: Beyond Cultural Discontinuity

Richard St. Germaine

ERIC DIGEST

ALTHOUGH THE transition to high school poses difficulties for all students, American Indian/Alaska Native (AI/AN) students regularly face additional obstacles that can impede their progress in school. Indeed, according to a recent study, 25.4 percent of AI/AN students who should have graduated in 1992 dropped out of school—the highest percentage of all racial/ethnic groups in the U.S. (National Center for Education Statistics, 1994, p. 34). Educational theorists and researchers have provided various explanations for this high failure rate, each with its own set of prescriptions. Recently, much attention has focused on cultural discontinuity. This Digest suggests that addressing cultural obstacles is an important but incomplete approach to increasing AI/AN students' success.

What Theorists Suggest

The diversity of the AI/AN community, as well as the great contrast between the urban and rural circumstances of Native people, makes it difficult to generalize the reasons for the high drop-out rate of AI/AN students. McLaughlin (1994) summarized various theories developed to explain *minority language* learners' failure to thrive in existing school systems. These theories may provide ideas for understanding dilemmas faced by AI/AN youth.

Education psychologists have focused on the individual learner who, they believe, arrives at school broken by impoverishing home and community experiences. This *deficit theory* calls for helping individual students acquire mastery of skills before moving ahead, as well as providing enrichment to overcome deficits in background experiences.

Organizational theorists have focused on schools and school systems, which they see as the primary culprits in school failure. These *school effectiveness* proponents call for school restructuring and systemic reform efforts, including rethinking such important issues as how time is used and who is involved in planning and decision making.

Sociologists and *anthropologists* have focused on powerful economic and political structures that underpin all aspects of society and "create arrangements . . . that systematically give voice to some and deny it to others" and are structured "around successful and unsuccessful competence displays such that winners and losers are inevitable" (McLaughlin, p. 53). These *critical theorists* call for teachers as coaches, pedagogy as problem solving, and a curriculum that addresses important themes connected to the lives of students.

Lastly, *sociolinguists* have a narrower focus on the teacher-learner interaction, where they find constant miscommunication resulting from different cultural and linguistic preferences for interaction. *Cultural differences theorists* believe solutions lie in teachers becoming knowledgeable about the culture and language of their students and adapting curriculum and teaching methods to students' needs.

The idea of *cultural discontinuity* contains elements of both of the last two theories just described. Increasingly, it has become an explanation for the difficulties AI/AN students face in adjusting to and finishing high school. Cultural discontinuity theory was originally applied in relation to urban minority groups. But it also has been applied to rural minorities, including rural AI/AN students.

Frequently in rural areas, there is little interaction between neighboring Native and majority cultures. Rural AI/AN students often attend small community or reservation schools in which they constitute the majority, if not the entirety, of the student population. In the transition to middle school or high school, however, many AI/AN students experience the reverse: They become a minority in schools that are predominantly White, with many AI/AN students experiencing their first prolonged contact with another culture.

Cultural Discontinuity: The Clash of Cultures

Theories of cultural discontinuity have their origins in the anthropological studies of ethnic minority groups within a dominant, majority culture. According to students of cultural discontinuity theory, minority children, having been initially raised in a distinctive culture of their own, are often thrust into a school system that promotes the values of the majority culture—not those of their own. If the resulting clash of cultures continues, the minority child may feel forced to choose one culture at the expense of the other. A tragic paradox emerges: Success (in school) becomes failure (in the community), and failure becomes success. Moreover, it has been argued that failure is not simply the passive act of neglecting to complete required tasks, but that it may be a status that is actively pursued by ethnic minority students in order to preserve their culture of origin. In other words, failure in school is a tacit cultural goal that must be achieved (McDermott, 1987; Spindler, 1987).

Two Contrasting Case Studies

Cultural discontinuity. In a study by Wilson (1991), Canadian Sioux students attended a reservation school through the elementary grades and were then bused to a city high school to complete grades 10 through 12. While in the reservation school, the students were described as having high expectations, as being attentive and interactive with teachers, and as having received good test scores and grades. But upon entering the large, predominantly White high school, they faced racial prejudice, isolation, low expectations of teachers, and a "structure [which] appeared to them to have been designed for their failure, and they failed, practically overnight" (p. 371). Of the 23 reservation students who were enrolled in the high school when the study began, 18 dropped out.

The study attributes much of the failure rate of Sioux students to cultural discontinuity, sometimes racist in nature. In the reservation classrooms, small groups of students were observed sitting at circular tables with the teacher moving freely about the room, making contact with

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students. In comparison, the high school classrooms had students facing forward toward the teacher, who interacted with only a few White students seated in front and virtually ignored the Indian students congregated in the back. The study examined the school buildings for signs of cultural difference. The circular reservation school (designed by an Indian architect to symbolize the circle in Indian spirituality) stood in contrast to the rectangular city high school.

Cultural continuity. Reyhner (1992a) indicated the need for K-12 day schools, particularly in certain Native communities, and points to the success of small village high schools in Alaska. As a result of a lawsuit filed on behalf of 126 village communities, the state of Alaska has provided small village high schools to Native peoples since 1976. Previously, Native students traveled far from home to attend boarding schools. While small village high schools have advantages in keeping students close to home and providing a caring learning environment, they have definite limitations in course variety, the number of advanced courses and extracurricular activities offered, and exposure to the world outside the village. The village high school has not solved all problems, but, in terms of high school completion, it seems to have been successful. The graduation rates of rural Alaskan high school students now exceed the national average (Kleinfeld, 1985).

Is Cultural Continuity the Answer?

While it seems clear that cultural discontinuity plays a major role in AI/AN student failure, some researchers caution that this theoretical construct may be too narrow (Foley, 1991; Ogbu, 1987; Trueba, 1988; 1991). They argue that the research ignores "macrostructural variables," and further claim that "there is overwhelming evidence that economic and social issues . . . not culturally specific to being Indian (although they may be specific to being a minority) are very significant in causing students to drop out of school" (Ledlow, 1992). Researchers question why cultural discontinuity has a greater impact on some students than on others. Pointing to evidence showing that Indian students from the most traditional homes seem to have the least trouble in school, some researchers conclude that a "culturally non-responsive curriculum is a greater threat to those whose own cultural 'identity' is insecure" (Deyhle, 1989).

Addressing cultural discontinuity via the curriculum can thus be only a partial solution. Jon Reyhner (1992b) seems to have drawn from all of the theorists as he explored the issues of AI/AN education for the Indian Nations at Risk Task Force. The following is a summary of what he viewed as major problems involved in educating Indian youth, along with some suggested solutions.

Large schools. Restructure existing large schools, using the school-within-a-school concept. Limit the size of new schools, taking as much care as possible to avoid the large, comprehensive high school of more than 1,000 students.

Uncaring and untrained teachers and counselors. Encourage positive teacher-student interaction. Recruit more AI/AN teachers and ease restrictions that prevent qualified AI/AN individuals from teaching.

Passive teaching methods. Too often, the complaint is made by AI/AN youth that they are "bored out" of school. Active learning strategies should be employed, where students are encouraged to interact with peers, instructors, and their environment.

Inappropriate curriculum. Use a culturally relevant curriculum with materials designed for AI/AN students.

Inappropriate testing and student retention. Use testing to locate student weakness for the purpose of adjusting instruction, not to track students out of college preparatory programs. Avoid holding students back.

Tracked classes. Hold high expectations for all students. Tracking stigmatizes students and restricts them from more challenging and interesting material.

Lack of parental involvement. Increasing parental involvement reduces cultural discontinuity between home and school.

Finally, an additional concern is the **high transfer rate** of AI/AN students between schools. Many AI/AN students transfer between schools during the course of an academic year for a variety of reasons. This is possible because students have several options including public, federal day and boarding, and mission schools. Transferring creates difficulties for researchers in keeping track of Native students, but, so far, there is no conclusive proof that transferring is detrimental to their progress through school (Swisher & Hoisch, 1992). The issue needs further study, however, to determine both its cause and its effect on Native students' progress.

Conclusion

Cultural discontinuity is one of the obstacles AI/AN students face in completing a high school education, but it is certainly not the only one. Addressing cultural discontinuity by adjusting the curriculum, while helpful, cannot address larger socioeconomic issues affecting Native children. Ultimately, the cultural factor that may need the most attention to improve life prospects for AI/AN and other minority high school students is the conflict caused by maintaining societal arrangements that produce substantial poverty within a nation of affluence and concentrate such poverty in certain groups, including American Indians and Alaska Natives.

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Digest

March 1995

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Dropout Intervention and Language Minority Youth

Adriana Vaznaugh, Center for Applied Linguistics

Youth from non-English-language backgrounds are 1.5 times more likely to leave school before high school graduation than those from English-language backgrounds (Cárdenas, Montecel, Supik, & Harris, 1992). High dropout rates among students from economically disadvantaged and non-English-speaking backgrounds are among the major concerns of middle and high school educators in the United States. Though dropout rates have declined overall in recent years, especially among Blacks and Whites, the trend for Hispanic students is quite the opposite. According to the Census Bureau, in 1992 roughly 50% of Hispanics ages 16 to 24 dropped out of high school, up from 30% in 1990 (GAO, 1994).

By the year 2010, Hispanics are expected to be the largest minority group in the United States, making up 21% of the population (OERI, 1993). Thus, the increase in dropout rates among Hispanic high school students is cause for growing concern. Various dropout prevention programs have emerged as one response.

This digest describes three programs for middle and high school students at risk of dropping out of school. The first two programs are specifically geared toward limited-English-proficient Hispanic youth. The third, a vocational program, involves African-American students as well.

Coca-Cola Valued Youth Program

Developed by the Intercultural Development Research Association in Texas, Coca-Cola Valued Youth Programs (VYP) have been implemented in 60 schools in 8 states. The goals are to help Hispanic middle and high school students achieve academic success and improve their language skills. Other goals are to strengthen students' perceptions of themselves and school and to form school-home-community partnerships to increase the level of support for these students (Cárdenas et al., 1992).

Middle and high school students are paired as tutors with elementary school students identified as being at risk of dropping out of school. Tutors are paid minimum wage for their work. The program's philosophy is that the tutors, by being placed in paid positions of responsibility and treated as adults, will improve their self-esteem and academic performance. As one tutor claimed, "When I'm helping these kids, I'm helping myself. I'm learning things when I'm tutoring them" (Claiborne, 1994). In turn, the student being tutored will grow both academically and personally under the attention of the tutor and will be encouraged to remain in school until graduation.

Cross-age tutoring, the main component of the VYP, takes place at the elementary school one hour a day, four days a week; on the fifth day, the tutors take a class on effective tutoring strategies (Robledo & Rivera, 1990). In addition to conducting the tutoring sessions, tutors must adhere to the employee guidelines of their host school and report to a teacher coordinator, who monitors and evaluates their progress. Student tutors also attend classes in English as a second language and content areas.

Field trips, conducted at least twice a year, are designed to broaden students' horizons by exposing them to cultural and professional possibilities in their communities. A student recognition component serves to instill a sense of self-worth in both tutors and tutees. This takes the form of a celebratory lunch or dinner, media attention, or presentation of merit awards for student efforts to stay in school and help others do the same. Finally, adults who are successful in their field, have the same language and cultural background as the students, and have overcome similar obstacles act as role models and provide guidance to both the tutors and the tutees.

Project Adelante

Project Adelante, established in 1988 at Kean College, NJ, is currently implemented in three New Jersey school districts. The project's goals are to improve the high school graduation rate of Hispanic students (especially those still learning English), increase their opportunities for college admission, and increase the number who enter the teaching profession (CAL, 1994).

Hispanic middle and high school students receive academic instruction, career and personal counseling, peer tutoring, and mentoring by Hispanic professionals. This takes place on the Kean College campus during an intensive five-week Summer Academy and at Saturday Academies during the academic year. Students usually enter the program in middle school and are encouraged to remain with it until they complete high school.

Academic courses include English as a second language, science, and math. Class size is kept at around 15 students. Teachers are free to design courses that are interesting and appropriate for the students, to use both English and Spanish in the classroom and in social settings, and to adjust their class schedules as needed to accommodate special projects or field trips.

Personal and career counseling are key aspects of the program. Program counselors, like teachers, come from participating schools and participate in all events, so they know the students well. Students meet regularly with their counselors in one-on-one and small-group settings and take a full course taught by a counselor, which covers social and academic issues. The counselors also sponsor daytime and evening sessions for the parents to come to the campus and discuss issues selected by the parents.

Peer tutoring furthers Adelante's goal of encouraging students to enter the teaching profession. Tutors are Hispanic and African-American high school juniors and seniors and Kean College freshmen and sophomores, many of whom are former Adelante students. Each tutor is assigned a small group of students to meet with, work with in class, and interact with in written dialogue journals. The tutors serve as role models. At the same time, tutors receive intensive and ongoing training. They learn the tasks and responsibilities of teaching and are often inspired to pursue teaching careers.

The mentoring program involves a collaboration with HISPA, a service organization for Hispanic employees at AT&T committed to promoting the education of minority youth and children. Students meet with mentors regularly to socialize or to focus on academic and professional activities, such as visiting the mentor's office, doing school work, or filling out college applications.

California Partnership Academies

The California Partnership Academies Program represents a three-way partnership among the state, local school districts, and supporting businesses. Grants from the state are matched by direct or in-kind support from the participating business and school district to set up an academy. Goals are to provide academic and vocational training to disadvantaged students and to decrease youth unemployment.

Participation in the program is voluntary. To qualify, students whose past records put them at risk of failing or dropping out of school must show that they "want to turn themselves around" (Stanford Mid-Peninsula Urban Coalition, 1990). Students apply and are interviewed in the second semester of 9th grade. Academy staff (teachers, administrators, counselors) and representatives from the participating business then meet with parents of applicants to explain the goals of the program, answer questions, address concerns, and get permission for the students to participate. Selected students enter the program in the first semester of 10th grade.

Partnership Academies function as a school within a school (Dayton & Stern, 1990). Through block scheduling, students enroll as a group in one technical class (designed with the collaborating business) and three academic classes (English, math, and social studies or science). Students spend the morning in their vocational/technical and academic courses then join the rest of the student body in the afternoon for extracurricular activities (Raby, 1990). Teachers invite outside speakers to share information on career selection, employment skills, and the importance of getting an education.

In 11th grade, each Academy student is matched with a mentor from the business community, who serves as a role model and offers guidance and information on succeeding in the workforce. In the summer following 11th grade, Academy students in good academic standing are given jobs with the participating business, with the goal of improving their employment skills and increasing their chances for gainful employment after graduation.

Other aspects of the program are student recognition (awards for student of the month, excellent attendance, and academic and personal achievement) and parental involvement, sought through questionnaires to parents regarding meeting and workshop topics, invitations to accompany students on field trips, a newsletter, and constant personal contact with Academy staff.

California Partnership Academies have had a positive effect on participating students. They report that being able to see the connection between an education and work makes school more interesting. As one student reported, "I'm 18 and I've had three jobs—all of them at major companies. I've never tossed a fry or slapped a burger, and thanks to the Academies I won't have to" (Raby, 1990). The goal is for 94% of Academy students to focus on long-range plans, such as continuing their education, pursuing careers, or both.

Conclusion

Dropping out of school results from many complex factors and long-term individual experiences (OERI, 1993). Successful dropout prevention programs for language minority students, like those described here, must have the following components: respect for the language and cultural backgrounds of the students they serve and for the positive qualities students bring to school; the possibility of long-term involvement, from middle school through high school; a well-designed academic curriculum, developed by committed and experienced professionals who facilitate movement through the program and provide assistance in pursuing academic opportunities beyond high school; substantive work experience that promotes mature choices and access to high-quality jobs; a tutoring and mentoring component that provides intense personal attention and encouragement from successful and caring role models; and family and community involvement. For language minority students, programs must also include appropriate components for native language support and English language development.

Dropout prevention demands attention from school and district staff in collaboration with local businesses, community colleges and universities, community-based organizations, and policymakers for any lasting impact to be made on reducing dropout rates among the nation's language minority students.

Program Contacts

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Outdoor Education and Troubled Youth

Dene S. Berman and Jennifer Davis-Berman

OUTDOOR EDUCATORS have explored the therapeutic uses of camping, expeditions, and challenge courses since the 1930s. This Digest provides a brief historical synopsis of the parallel development of both outdoor education and outdoor therapeutic programs in working with troubled and adjudicated youth. The Digest also describes the rationale supporting the use of outdoor approaches, the findings from a recent study of outdoor therapeutic methods, and the findings from the few research and evaluation studies that have been conducted to measure the effect of these approaches.

Historical Roots

Some of the earliest attempts using the out-of-doors as a healing environment took place in the "tent therapy" programs at state hospitals during the early 1900s (Davis-Berman & Berman, 1994). For a brief period, a number of articles appeared in the psychiatric literature reporting the therapeutic benefits of moving certain psychiatric patients out of the buildings and into tents set up on the lawns of psychiatric hospitals. Although these programs provided anecdotal evidence of benefits for the patients, they were haphazard at best. By 1920, such accounts disappeared from the literature.

In the mid-1900s, more sophisticated camping programs for troubled youth began, some that included observation, diagnosis, and psychotherapy components. The University of Michigan Fresh Air Camp employed trained counselors and staff psychologists to treat campers selected because of their mental health problems. Similarly, the Salesmanship Club Camp (Dallas, Texas) was founded in 1946 to serve emotionally troubled children. Its founder, Campbell Loughmiller, believed therapeutic wilderness programs should include the perception of danger and immediate natural consequences for lack of cooperation on the part of campers. According to Loughmiller, successfully confronting danger built self-esteem, and suffering natural consequences taught the real need for cooperation.

A parallel development of experience-based programming also was taking place in schools and universities, beginning midcentury and continuing on into the 1970s. The two movements had many common influences, including early thinkers such as John Dewey (1938) and Kurt Hahn, an important figure in the international development of the Outward Bound program beginning in the 1940s. Hahn believed that it was essential to develop both the bodies and minds of students. He was also strongly committed to the notion of community and service (James, 1993). These early ideas helped shape Outward Bound as one of the most influential experiential programs operating to this day. The interested reader is referred to Miner and Boldt (1981) and James (1993) for a history of Outward Bound.

From the decade of the 1970s to the present day, there has been growing interest in experiential learning and outdoor programs. The Project Adventure program, bringing experiential methods and techniques into the public school, was founded in 1971. On an international level, the Association for Experiential Education was officially founded in 1977, as was the Wilderness Education Association (contact information for these organizations is listed at the end of this Digest).

Since the 1970s, there has been a dramatic increase in the number and types of outdoor programs geared specifically toward troubled youth. Prior to discussing these programs we will briefly review the rationale behind the use of the out-of-doors in working with troubled youth.

Why Use the Out-Of-Doors?

There are aspects of traditional program settings that inhibit the emotional growth and education of some individuals. Most change efforts involve verbal interchanges between staff and participant. This is not an effective way of reaching many people, especially adolescents who may be resistant to talking or who lack trust in adult authority figures. Outdoor programs offer a physically active way for staff and participants to relate to one another, so the emphasis is not solely on talk.

Outdoor programs also place troubled youth in unique settings where they are often quite unsure of themselves. Moving out of the usual environment sometimes serves to reduce defensiveness and change relationships with adult leaders. Many programs incorporate an element of perceived risk, thereby encouraging participants to move beyond their comfort zones and face their issues and fears. Finally, many outdoor programs use a small-group format and encourage interdependence among group members. In expedition programs, where participants and leaders venture out into natural settings for extended periods of time, the 24-hour-a-day group experience becomes very powerful.

Varieties of Programs

For purposes of this Digest, we define troubled youth as those who have mental health problems (diagnosed by a psychiatrist and considered in need of counseling) or who are in the juvenile court system. The vast majority of programs for youths fall under these two categories.

Mental health programs. Information about mental health programs was solicited in a national survey conducted by Davis-Berman, Berman, and Capone (1994). The results included several major findings:

- programs can be categorized as inpatient, outpatient, residential, or expedition types;
- the *majority of all programs* are offered by private agencies;

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- *most inpatient programs* are also run by private agencies;
- taken together, the programs deal with a wide range of problems and issues of youth; and
- the most common problems and concerns include behavioral problems, school and family problems, conduct disorders, self-esteem issues, depression, and suicidal ideation.

The extent of the use of the outdoor environment varied among the mental health programs. Some programs, most notably those based in hospitals, use the outdoors primarily through a ropes course experience. Other programs offer backpacking or canoeing programs for youth who live in the surrounding community (they return to their homes after trips). Still others offer more lengthy expeditions. Participants in expedition programs usually reside at a base camp, from which they travel.

The therapeutic approaches reported by these programs are often quite vague. Those programs that focus on substance abuse issues use a 12-step approach. Others mention "metaphor therapy," while some rely on more traditional individual and group therapy approaches in their outdoor settings.

Court Programs. There are far greater numbers of mental health programs than there are court-related programs for juveniles. However, there is a great deal of overlap between these categories. The majority of court-related programs are residential in nature and long-term in their approach. They are often designed as an alternative to traditional incarceration, and usually involve expeditions led out of a more traditional treatment center setting. Some programs have juveniles living in a base camp setting year round, augmented by intensive wilderness outings run from the base camp. Other court-related programs use the outdoor environment to a lesser extent. These programs use some of the ropes course experiences or run short wilderness excursions.

Do These Programs Work?

The effectiveness of outdoor therapeutic programs is a critical issue, particularly when such programs are used as alternatives to either incarceration or hospitalization for troubled youth. A comprehensive discussion of the research in this area is beyond the scope of this Digest. The interested reader is referred to the literature for in-depth review and discussion of research issues (e.g., Davis-Berman & Berman, 1994; Gass, 1993; Miles & Priest, 1990). Generally, the research on outdoor programs has been sparse and has had some methodological difficulties. However, a number of good studies have been done, which have provided evidence of the effectiveness of these programs:

- Studies of mental health programs have shown widely reported increases in self-esteem of participants and a positive impact on self efficacy.
- Evaluation studies on delinquency programs have shown similar positive gains in self-esteem and reductions in recidivism rates compared with participants involved in traditional programs.
- A recent meta-analysis (Cason & Gillis, 1994) of 43 research studies using experiential education techniques with troubled youth found effect sizes in the moderate range.

These studies suggest generally positive results for outdoor programs for troubled teens, but more research needs to be done. Presently most mental health programs are not evaluating their effectiveness and those that do often have methodological problems.

Critical Issues and Resources

Unanswered questions in this field that would benefit from more study include the following:

- What can adventure education contribute to therapeutic programs?
- For which participants are outdoor approaches most effective?
- To what standards should therapeutic programs be held accountable?
- What should be the qualifications for professional staff in this field?

Yet, enough anecdotal evidence from early programs and evaluation results from recent programs exists to warrant positive statements about the usefulness of outdoor programs in addressing the needs of this complex and challenging group of young people.

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Wilderness Education Association
Department of Natural Resources, Recreation and Tourism
Colorado State University
Fort Collins, CO 80523

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SCHOOL DROPOUTS: NEW INFORMATION ABOUT AN OLD PROBLEM

In the last few decades, both the personal and social cost of dropping out of school have increased. Concurrently, significant education resources have been applied to student retention efforts.

The primary source of information about dropouts is the National Center for Education Statistics (NCES) of the U.S. Department of Education, which collects statistics and conducts longitudinal studies. To present a picture of the current dropout situation, researchers at the Policy Information Center of the Educational Testing Service (ETS) have analyzed NCES information, data from state, city, and other sources, and results of surveys of recent high school students. The ETS report, *Dreams Deferred: High School Dropouts in the United States*, with a special focus on urban youth, is summarized in this digest.

The Dropout Population

The Dropout Rate

Overall. Calculating an accurate dropout rate is nearly impossible, since some students return to school, and schools differ in their definitions and counting methods. Nevertheless, the dropout rate appears to be declining, although about 381,000 students left school without graduating in 1993. Nearly two-thirds of the dropouts leave before the tenth grade, 20 percent drop out by the eighth grade, and 3 percent do not even complete the fourth grade.

Ethnic Differences. Hispanic students are slightly more likely to drop out than African Americans. Asian American and white students are less likely than both those groups. Nearly 40 percent of Hispanic students who drop out do so before the eighth grade.

The Urban Rate. The dropout rate in large urban districts remains high, although it has decreased slightly in the last few years. In some districts it is double the national average, and in 1992-93 one out of four districts had a four-year dropout rate greater than 35 percent. Also, as opposed to the national trend, the rate for African American and Hispanic students is increasing in some urban areas.

High School Equivalency Candidates. Each year, however, nearly half a million people get a high school equivalency General Educational Development (GED) certificate. In 1993 the 450,000 people who passed the GED tests accounted for one-seventh of the population receiving a diploma. The average age of GED candidates was 26 in that year, and more than 60 percent of them planned to continue their schooling after receiving a certificate.

Income and Earnings Potential

In 1992 dropouts earned slightly under $13,000 on average, about one-third less than high school graduates.

With respect to lifetime wages, the gap between dropouts and more educated adults is widening steadily as opportunities expand for higher skilled workers and disappear for the less skilled. For example, it is estimated that, overall, the 1993 dropout pool will earn $212,000 less than high school graduates, and $812,000 less than college graduates. Further, in the last 20 years, the earnings level for dropouts doubled while it nearly tripled for college graduates, a trend that is likely to intensify in the future.

Dropouts comprise nearly half of the heads of households on welfare, and a similar percentage of the prison population.

Characteristics

Using data from surveys covering four years in the lives of students who began high school in 1988 (the National Educational Longitudinal Study, NELS:88, Second Follow-Up), ETS identified characteristics common to many dropouts based on the youth's responses:

Marital Status and Parenthood. In 1992, about one-fifth of the dropouts (approximate age 18) were married, living as married, or divorced, with females more likely than males to be married. Nearly 40 percent had a child or were expecting one. Nearly one-third of the females who dropped out cited pregnancy as the reason. Interestingly, some youth said they dropped out because they wanted to have a family: 12 percent of the females and six percent of the males.

School and Home Stability. More than half the dropouts moved during the four-year study period, compared with 15 percent of the graduates. Nearly a quarter of the dropouts changed schools two or more times. Twice as many dropouts as graduates ran away from home: twelve and six percent.

School Experiences. A large majority of dropouts were enrolled in a general high school program, with very few in a college preparatory program. Almost one-fifth were held back a grade, and almost half failed a course. They were also more likely than the persisters to have been enrolled in special education or alternative programs. Dropouts reported the following information about personal behavior during their last two years in school:

- Almost one-half missed at least 10 days of school.
- One-third cut class at least 10 times.
- One-quarter were late at least 10 times.
- One-third were put on in-school suspension, suspended, or put on probation.
- Six percent were transferred to another school for disciplinary reasons.
- Eleven percent were arrested.
- Eight percent spent time in a juvenile home or shelter.

Attitudes and Expectations. Dropouts tended to believe that they don't have control over their lives, that chance and luck are important, and that something always seemed to stop them from getting ahead. Conversely, graduates felt that they had a great deal of control over their lives, a belief known to promote educational achievement.

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Dropouts did not differ significantly from graduates in their sense of self-concept, with both expressing some negative personal feelings. Nearly one-half felt "useless at times," one-third thought they were "no good at all," and nearly one-quarter "didn't have much to be proud of."

Despite leaving school, 85 percent of the dropouts planned to attain at least a high school education. About one-fifth expected to attend a career education school; a third expected to attend college, with 11 percent looking forward to getting a degree; and five percent expected to get a master's degree.

Reasons for Dropping Out

As reported, usually a variety of school problems and personal factors combined to cause a student to drop out. Dropouts cited the following reasons most frequently:

School Factors

- Didn't like school in general or a particular transfer school.
- Was failing, getting poor grades, or couldn't keep up with school work. (Only 18 percent reported having passed their last year of school.)
- Didn't get along with teachers and/or students.
- Had disciplinary problems, was suspended, or expelled.
- Didn't fit in.
- Didn't feel safe.

Personal Factors

- Got a job, had a family to support, or had trouble managing both school and work.
- Got married, got pregnant (one-third were pregnant when they left), became a parent, wanted to have a family, or had a family to take care of.
- Had friends who dropped out.
- Wanted to travel.
- Had a drug or alcohol problem.

Interventions

Schools

The most frequent intervention by school personnel was trying to talk a student into staying, but even this effort was cited by only 39 percent of dropouts surveyed. However, since the dropouts' responses about interventions were based on a question about what happened "the last time" they stopped attending school, they may not have thought they should include earlier interventions. Further, the youth may not have even realized that some long-term interventions, such as remedial education, were actually dropout prevention measures. Among the concrete offers made to potential dropouts were these:

- Help with making up missed work, tutoring, and/or placement in a special program.
- Transfer to another school.
- Help with personal problems.
- Calls or visits home.

Some schools indicated that they would permit a student to return if he or she got good grades, followed rules, or promised better attendance. Conversely, 17 percent of the potential dropouts reported being told that they couldn't come back to school, and 16 percent were expelled or suspended.

Families

Dropouts reported that parents and guardians were more opposed to their decision than were school personnel, with three-quarters indicating that their families had tried to talk them out of leaving school. However, a majority were also told that the decision was theirs. Among the offers made by families to encourage persistence were these:

- Help with personal problems.
- Counseling.
- Help with making up school work.
- Arranging for tutoring, a school transfer, and/or placement in a special program.

About 20 percent of parents and guardians, particularly those with sons at risk of dropping out, also contacted principals, teachers, and counselors. The youth reported that an equal percentage of caregivers said that it was all right to leave, while 12 percent punished the dropout.

Conclusion

Despite leaving school, most dropouts recognized that they needed further education and expected to acquire it. Indeed, eight percent of the youth surveyed already had obtained a GED certificate. Further, the career aspirations of many dropouts were high, although they were currently holding low-skill, low-paying, and possibly dead-end jobs. Such optimism suggests that they did not believe they were sacrificing their futures by dropping out.

Since completing a high school education without interruption is the best foundation for realizing the dreams of youth, it is crucial that both educators and families find ways to make it possible for all students—the pregnant and parenting, the ones who need to hold jobs, the failing, and even the most problematic student—to stay in school.

— Wendy Schwartz

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VOCATIONAL SUPPORT STRATEGIES FOR STUDENTS WITH EMOTIONAL DISORDERS

Cathy Schelly, Pat Sample, and Julia Kothe

Youths with emotional and behavioral disorders often face a range of compounding factors that may include poor socioeconomic status, limited education, single-parent households, dysfunctional family relationships, incest, sexual abuse, teen pregnancy, violence in the home, and unemployment (Commission on Behavioral and Social Sciences and Education, 1993). Their support needs are dramatic, and, if not addressed, result in behaviors that lead to dropping out or expulsion from school, termination from work, and, in many cases, incarceration (Marder & D'Amico, 1992). Wagner (1993) notes that youths with emotional disorders have the highest arrest rate 3 to 5 years out of school and the highest dropout rate of all other disability groups.

To address these behaviors and facilitate vocational success, youth empowerment, community-based services, and individualized help are necessary support strategies. Most importantly, the process must give clear direction to support providers as to the unique needs of youths with emotional disorders and allow these youths to be in charge of their lives and futures.

Obstacles to Finding Employment

This population consistently encounters certain barriers in finding and maintaining employment. Ineffective verbal and nonverbal communication and avoiding risk-taking experience, present challenges. After obtaining a job, they may have difficulties following instructions, staying on task, accepting feedback, planning ahead, and demonstrating socially acceptable work behaviors.

Difficulty with Verbal and Nonverbal Communication. Struggles with making phone calls and going through the interview process are common for youths with emotional disorders because they may have difficulties in verbal expression. Nonverbal communication skills may also be underdeveloped as evidenced through poor posture, limited eye contact, voice tone, facial expressions, and inappropriate dress, hairstyles, or jewelry. This nonconforming appearance combined with limited communication skills often creates a negative first impression for employers and thus becomes a barrier to obtaining employment.

Avoidance of Risk-Taking Situations. While youths with emotional disorders may have a desire to obtain employment, they may also have a desire to avoid a perceived risk-taking situation, as demonstrated by a lack of follow-through with job search activities and "cold feet" as they near possible employment. Further, the experience of success in any life area is often viewed as a risk-taking situation because it may be unfamiliar territory with increased responsibilities and pressures. Because of this fear of the unknown, potentially successful opportunities are often sabotaged to avoid risky situations.

Obstacles to Maintaining Employment

Upon securing a job, youths with emotional disorders struggle with maintaining a job (Wagner, 1993). Following instructions and staying on task are an ongoing challenge. There often are difficulties taking instruction from someone considered to be an authority figure. Therefore, when instructions are given, the outcome may be a power struggle between youths and their employers, which may result in job loss. Many youths from this population are also multiply diagnosed with attention deficit disorder, attention deficit hyperactivity disorder, and learning disabilities, all of which may make staying on task and following instructions even more of a challenge (Hughes, Deshler, Ruhl & Shumaker, 1993).

Accepting Feedback. A low sense of self-worth may contribute to an inability to deal with criticism and accept constructive feedback. In addition, many youths with emotional disorders have trouble managing their anger in a confrontational situation. As a result, confrontation on the job may lead to an explosive situation and end in job loss.

Planning Ahead. Reactive, impulsive behaviors often preclude planning ahead and anticipating undesirable consequences. On the job, these youths often act before they think, which may lead to negative consequences.

General Lack of Socially Acceptable Work Behaviors. The collective behaviors of youths with emotional disorders tend to indicate an overall lack of work ethic. Behaviors such as sticking with a job, taking initiative, coming to work on time, working to the best of one's ability, ending a job appropriately, or showing respect are often not apparent. One reason may be that many youths have not had role models that demonstrate effective work skills.

Strategies for Support

Support strategies for this population might include the following:

Functional Community Referenced-Assessment. A community-based assessment process assists youths with emotional disorders (as well as individuals with other types of disabilities) in choosing and getting a job. This highly individualized process identifies strengths, interests, barriers, and support strategies in the work, school, community, recreational, home, and social-emotional domains. An ongoing approach, offering volunteer, short-term work trials to youth, uses community-based resources for constant learning opportunities. "Hands-on" experiences create a greater sense of personal confidence and lower the risk associated with acquiring a job. Assessment information targets specific behavior support needs for each youth, allowing for the immediate and ongoing implementation of functional behavioral support strategies. Assessment information provides direction for job development, vocational support strategies, and training needs.

Modified Supported Employment. Many youths with emotional disorders need very little help with on-the-job skill acquisition and therefore typically will not benefit from a traditional job coach model. These youths need support with problem-solving, effective communication, and demonstration of appropriate behaviors in the workplace. Members of this population may be very concerned about fitting in with co-workers and peers and not being stigmatized in any way. Therefore a modified version of supported employment uses an employment consultant rather than a job coach. An employment consultant (1) helps to educate employers, (2)

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facilitates problem-solving and effective communication; and (3) provides "behind the scenes" support.

Career Skills Preparation. Many youths with emotional disorders respond well to individualized support. Therefore, the employment consultant works with youths individually to develop effective resumes, fill out applications, and practice interview skills. This support combined with an experiential, community-based career skills curriculum is particularly effective (Bullis & Gaylord-Ross, 1991; Grosser & Pennington, 1991) in preparing youths with emotional disorders for the job search process.

Problem-Solving Implementation. At the time of job placement, the youth, the employer, and the employment consultant sign a problem-solving agreement. This agreement helps to facilitate open communication between all parties and allows everyone to plan ahead for any future conflicts. If a problem arises, the agreement specifies a list of problem-solving steps. If the problem persists, the agreement provides for implementation of a behavioral contract. This tool also helps employers recognize the needs of this population and learn how to develop effective support strategies.

Allowing Natural Consequences to Occur. As noted above, many youths with emotional disorders are experiential learners. Some of the most meaningful learning opportunities occur as the result of natural consequences. For example, if youths continually act out on a job and refuse to take steps to correct their disruptive behavior, the best option may be to experience the natural consequences of losing their job. In this situation, the employment consultant can turn an unfortunate circumstance into a learning opportunity by helping youths process their experience and learn what to do differently in the future.

Action Planning. Youths with emotional disorders can be empowered to be in charge of every aspect of their lives through an action planning process. They look at each domain of their lives and decide what priority areas must be addressed to achieve successful employment outcomes. The employment consultant is available to help establish a timeline and set realistic goals and objectives. This action plan is reviewed repeatedly to guide support services, check progress, and adjust goals. In this way, service provision is youth driven.

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Resources

National Transition Network
Institute on Community Integration
University of Minnesota
6 Pattee Hall
150 Pillsbury Drive, SE
Minneapolis, MN 55455
612/624-1062

Transition Research Institute at Illinois
University of Illinois
113 Children's Research Center
51 Gerty Drive
Champaign, IL 61820
217/333-2325

HEATH Resource Center
One Dupont Circle, Suite 800
Washington, DC 20036-1193
1/800/544-3284

National Center for Research in Vocational Education
University of California at Berkeley
Office of Special Populations
345 Education Building
1310 South Sixth Street
Champaign, IL 61820
217/333-0807

Developing Social Vocational Skills in Handicapped Individuals, Digest #447, ERIC Clearinghouse on Handicapped and Gifted Children, Reston, VA.

Electronic Resources

Digests published by the ERIC Clearinghouse on Disabilities and Gifted Education are available for downloading or onsite reading on the AskERIC Virtual Library *(ericir.syr.edu)*.

The following Internet sites provide additional information on vocational information for students with disabilities:

Telnet sites: *vocserv.berkeley.edu*
National Center for Research in Vocational Education

Listservs

PERKACT — Carl Perkins Vocational Education Act
Address: *listserv@siuvmb.siu.edu*
Post to: *perkact@siuvmb.siu.edu*

VOCEVAL — Vocational evaluation, adaptive technology
Address: *listserv@sjuvm.stjohns.edu*
Post to: *voceval@sjuvm.stjohns.edu*

VOCNET — Vocational education
Address: *listserv@cmsa.berkeley.edu*
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Goal 3: Student Achievement and Citizenship

By the year 2000, all students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.

Objectives:

- The academic performance of all students at the elementary and secondary level will increase significantly in every quartile, and the distribution of minority students in each quartile will more closely reflect the student population as a whole;
- The percentage of all students who demonstrate the ability to reason, solve problems, apply knowledge, and write and communicate effectively will increase substantially;
- All students will be involved in activities that promote and demonstrate good citizenship, good health, community service, and personal responsibility;
- All students will have access to physical education and health education to ensure they are healthy and fit;
- The percentage of all students who are competent in more than one language will substantially increase; and
- All students will be knowledgeable about the diverse cultural heritage of this Nation and about the world community.

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Achieving History Standards in Elementary Schools

by John D. Hoge

Concern over the quality and quantity of history instruction offered in many U.S. public schools has resulted in National History Standards for grades K-12. The National Standards, along with recent research on history learning, have influenced curriculum guides, textbook revisions, and new instructional materials in various formats.

Research On Children's Ability to Learn History. Children can and do understand historical time in a variety of ways (Downey and Levstik 1991). For example, children are capable of reconstructing patterns and sequences of historical events as they are represented in story-form narratives (Levstik and Pappas 1987). Children's ability to understand cause and effect relationships taking place over time—a basic dimension of historical reasoning—increases throughout childhood and adolescence (Zacarria 1978). By the end of 5th grade, students have acquired a good grasp of historical time terminology, can detect historical anomalies, and show some understanding of time periods in United States history (Hoge 1991). Research-based conclusions about the delayed (late adolescence) development of formal historical thinking ability still stand, though new studies, stimulated by new theories and improved research methodologies, suggest that this ability arises earlier than indicated by older studies (Levstik and Pappas 1992).

Different methods of teaching history produce different history learning outcomes. For example, children taught with a traditional textbook-worksheet-quiz routine learn more names and dates compared to those taught in a topically focused, non-survey approach that employs a variety of instructional materials. However, students in the non-traditional approach develop better insight into the past, better historical reasoning abilities, and more positive attitudes toward the subject (Booth 1980).

Downey and Levstik (1991) conclude that history instruction should (1) begin in the early grades, (2) focus on in-depth, sustained study of significant material rather than shallow coverage, and (3) make use of age-appropriate learning strategies.

National Standards and the Purposes of History Instruction in Elementary Schools. America 2000 set in motion a drive to establish national standards that would guide history instruction. The three-year effort of the National History Standards Project resulted in a detailed plan for teaching historical thinking skills and essential content understandings in grades K-12. The National Standards project divides thinking skills into five categories: (1) Chronological Thinking, (2) Historical Comprehension, (3) Historical Analysis and Interpretation, (4) Historical Research Capabilities, and (5) Historical Issues-Analysis and Decision-Making.

Content standards are divided into three sets: one for kindergarten through grade 4, one for United States history, as it is taught at different levels in grades 5-12, and one for world history, as it is taught at different levels in grades 5-12. The set of nine content standards for grades K-4 is divided into the following five topics: (1) Living and Working Together in Families and Communities, Now and Long Ago, (2) The History of Students' Own State or Region, (3) The Nation, (4) History of Peoples of Many Cultures Around the World, and (5) Historic Discoveries in Science & Technology.

Thirty-two content standards in U.S. history for grades 5-12 are distributed within ten periods or eras: (1) Three Worlds Meet, Beginnings to 1620, (2) Colonization and Settlement, 1585-1763, (3) Revolution and the New Nation, 1754-1820s, (4) Expansion and Reform, 1801-1861, (5) Civil War and Reconstruction, 1850-1877, (6) Development of the Industrial United States, 1870-1900, (7) The Emergence of Modern America, 1890-1930, (8) The Great Depression and World War II, 1929-1945, (9) Postwar United States, 1945-early 1970s, and (10) Contemporary United States, 1968-present.

Thirty-six content standards in world history for grades 5-12 are distributed within eight eras or periods: (1) The Beginnings of Human Society, (2) Early Civilizations and the Rise of Pastoral Peoples, 4000-1000 BCE, (3) Classical Traditions, Major Faiths, and Big Empires, 1000 BCE-300 CE, (4) Expanding Zones of Exchange and Encounters, 300-1000, (5) Intensified Hemispheric Interactions, 1000-1500, (6) Global Expansion and Encounter, 1450-1770, (7) The Age of Revolutions, 1750-1914, and (8) The Twentieth Century.

Readers of the National History Standards will have little doubt about what content they should teach. In addition, the guide illustrates, with numerous examples, how teachers should address the standards at each of these grade levels: (1) K-4, (2) 5-8, and (3) 9-12. The standards will doubtlessly be used to support curriculum development and related testing efforts.

Teaching of history inspired by the National Standards will help elementary school students achieve important goals of history instruction such as (1) building knowledge of their heritage and cultures of people around the world; (2) developing an understanding of continuity, change, and chronology; and (3) gaining insights into their own lives and contemporary events.

Teaching Practices That Develop Historical Knowledge, Thinking Skills, and Interest. Children's success in history learning is related to the quality and quantity of history instruction provided in the school curriculum. Teachers can meet the National Standards only through systematic implementation of a well-designed curriculum; one that indicates what to teach and how to obtain the support needed to fulfill that responsibility. Beyond the fundamentals of quality curriculum planning and teacher support, there are a number of classroom teaching

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practices that can help students develop competence and interest in the study of history.

Teachers can greatly enhance history instruction by the use of children's literature. There is a substantial supply of elementary-level historical fiction, biographies, and special purpose reference works related to history. Teachers should work with their school media centers and public libraries to identify the titles of books that may be used to invigorate history learning. Such books should be displayed attractively, used frequently, and discussed as a part of the regular classroom routine.

Instruction about the past is aided by the sounds and images of history offered through laserdiscs, videotapes, films, and filmstrips. Although overreliance on these resources is a fault, careful selection and meaningful integration of them with ongoing history instruction can do much to enhance students' knowledge of the past.

Special experiences pump life into children's history learning. Such experiences include field trips to museums and historical sites, historical simulations such as MECC's *Oregon Trail* or Interact's *Discovery 3*, historical craft and model-building experiences, in-depth National History Day projects, and the experience of constructing an oral history of some local "big event." When students are properly prepared for such special history learning experiences, the depth of understanding gained more than justifies the extra effort entailed.

With younger children it is important to begin teaching about history in the familiar contexts of their families, classroom, school, and neighborhood. As students construct familiar histories, ask them to explain—and attempt to justify—the significance of the events they have selected. Make timelines of their histories and help students include funny anecdotes and juicy details that will fuel interest in their stories.

Sources of Additional Information and Ideas. As you experience success in your teaching of history, consider attending a state, regional, or national social studies conference to share your adventures, gain new resources, and learn about other teachers' experiences. Join the National Council for the Social Studies and the National Council for History Education. Subscribe to HistoryLINK, a free Internet "listserv" supported by the National Council for History Education, by sending an e-mail subscription request to **as515@cleveland.freenet.edu** or call (216) 835-1776.

Information about the National History Standards Project may be obtained from The National Center for History in the Schools, University of California, Los Angeles (UCLA), 10880 Wilshire Blvd., Suite 761, Los Angeles, CA 90024-4108.

Conclusion. It appears that the traditional roles of history and geography as the leading subjects in elementary social studies will be further strengthened as a result of the development of the National Standards. History has much to offer students who are striving to learn about their world and developing a sense of themselves in it. Skilled teachers can use the strategies discussed here to help their students learn history **and love it!**

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Digest

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Alternative Assessment and Second Language Study: What and Why?

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Alternative assessment, authentic assessment, portfolio assessment, self-assessment, self-monitoring, and the list goes on. Clearly, assessment is a popular topic these days. Frequently encountered in professional publications, workshops, inservice training, and college courses, assessment meets the criteria for being a cutting-edge topic. Why is there such an emphasis on assessment in the 1990's? What does an emphasis on assessment mean for language teachers, researchers, and students? This Digest looks at these questions and discusses some of the practical implications of assessing language students differently than we currently do.

Assessment and Testing Contrasted

One useful way to think about assessment is to contrast it with testing, an ever-present factor that confronts teachers and students in all disciplines. Tests have come to be an accepted component of instructional programs throughout the world. Sometimes tests are justified on the basis of accountability: are students learning what they are supposed to be learning? Decision-makers need this type of evidence in order to make judgments about how to spend resources, for example. Sometimes, tests are viewed as feedback for language students concerning their progress. Oller (1979, p. 401) stated that "the purpose of tests is to measure variance in performances of various sorts." In this sense, testing--typically achievement testing--serves as a monitoring device for learning. Tests are given at a particular point in time to "sample" student learning. Most of us are familiar with "paper and pencil" tests even if they take on a computerized format. Ordinarily, after the test is given some type of reporting takes place, often in the form of a single score or grade. Sometimes, decisions are made based on test results (e.g., retake the test, pass the course, go on to the next unit of instruction, etc.). A final important aspect of testing is that the test is usually kept hidden from the students until it is administered, indicating a degree of secrecy in order to assure confidentiality.

Let's assume that this simple characterization of tests and testing is correct. Assessment then can be shown to be very different. Some important differences between testing and assessment become obvious. In an instructional program, assessment is usually an ongoing strategy through which student learning is not only monitored--a trait shared with testing--but by which students are involved in making decisions about the degree to which their performance matches their ability. Spolsky (1992, p. 38) rightly argues that diagnostic or formative assessment is typically curriculum-driven. This type of assessment shadows the curriculum and provides feedback to student and teachers. He wisely argues, too, for a multilevel system that combines testing and assessment. A paraphrase of this model (p. 37) would go something like this:

- Students are provided opportunities before and after units of instruction to assess their own performance (self-assessment).
- Teachers periodically assess students' performance and both discuss their respective assessments (tests and measurements).
- Occasionally, some external monitor assesses the student's (and perhaps the teacher's) performance and discusses it with the teacher.

Assessment, then, should be viewed as an interactive process that engages both teacher and student in monitoring the student's performance. Criterion-referenced testing is clearly based on this way of relating teaching-testing-assessment for congruence. Interested readers will find the 1994 Northeast Conference Report (Hancock, 1994) a valuable resource on this topic.

What is Alternative Assessment and Why Is It Needed?

Many of the reigning theoretical assumptions on which contemporary testing and assessment rely are based on behaviorist views of cognition and development. In the 1990's, we have come to realize that new, alternative ways of thinking about learning and assessing learning are needed. Gardner (1993) argues that there is a resurgence of interest in the idea of multiplicity of intelligences. He and other researchers claim the existence of mental modules (i.e., fast-operating, reflexlike, information processing devices). Fodor (1983) espoused the view that there are separate analytic devices involved in tasks like syntactic parsing, tonal recognition, and facial perception. Others (Sternberg, 1988, Perkins, 1981, Gruber, 1985) have investigated the concept of creativity. Their studies have shown that creative individuals do not have unique mental modules, but they use what they have in more efficient and flexible ways. Such individuals are extremely reflective about their activities, their use of time, and the quality of their products (Gardner, 1993).

So, while the operative is "alternative," we must ask alternative to what? A case can be made in second languages for an alternative to conventional ways of monitoring students' language progress and performance. Alternative assessment is an ongoing process involving the student and teacher in making judgments about the student's progress in language using non-conventional strategies.

A new assessment initiative in foreign and second language study should acknowledge the effect of context on performance and provide the most appropriate contexts in which to assess competence, including ones that involve the individual in making self-assessments. Brecht and Walton (1993, p. 2) define competence as "the capacity to perform a range of occupationally or professionally relevant communicative tasks with members of another cultural and linguistic community using the language of that community, whether that community is domestic or abroad." They also call for a field-specific language learning framework designed to guide the defining of competencies and "how these competencies are best acquired so as to focus scarce resources in the most efficient manner possible on curricular design, the development of instructional materials, the application of new teaching methodologies, teacher training and assessment, and research related to language acquisition" (pp. 8-9).

And What About Authentic Assessment?

Wiggins (1994) has identified a set of criteria by which to distinguish authentic forms of testing. His list includes the important notion of making the criteria and standards clear--de-mystifying them--so that accurate self-assessment and self-adjustment by the student can be fostered. Yap (1993) reported the results of a research project involving thirty-five adult basic (ABE) and English as a second language (ESL) programs. Writing assessment, portfolio assessment, and classroom assessment were shown to be valid approaches to the type of authentic assessment called for within the profession. Pierce, Swain, and Hart (1993) reported on a study of 500 eighth-grade students, suggesting that self-assessment was a valid and reliable measure of language proficiency. Pavis (1988) reported similar results for college students learning French based on a journal writing project in which students monitored their own learning and identified problems encountered as well as accomplishments over the course of the term. Allwright (1988) has argued that greater quality of learning can be ensured by putting the control over learning in the place where the learning is occurring, namely in the mind of the learner. According to studies such as these, alternative assessment that involves the learner in self-assessment is recommended, despite possible claims of subjectivity as a negative factor in their use. Heilenmann (1990) and Blanche (1990), in separate research projects, reported results involving students in self-assessment.

What Is Portfolio Assessment?

Portfolio assessment is an ongoing process involving the student and teacher in selecting samples of student work for inclusion in a collection, the main purpose of which is to show the student's progress. The use of this procedure is increasing in the language field, particularly with respect to the writing skill. It makes intuitive sense to involve students in decisions about which pieces of their work to assess and to assure that feedback is provided. Both teacher and peer reviews are important. Perhaps the greatest overall benefit of using portfolio assessment is that the students are taught by example to become independent thinkers, and the development of their autonomy as learners is facilitated.

What Goes into a Portfolio?

It is important to remember that a portfolio is much more than a simple folder of student work. A wide variety of portfolios exists: working portfolio, performance portfolio, assessment portfolio, group portfolio, application (e.g., for college admission) portfolio, and so forth. Depending on the purpose, one is likely to find any of these items: samples of creative work; tests; quizzes; homework; projects and assignments; audiotapes of oral work; student diary entries; log of work on a particular assignment; self-assessments; comments from peers; and comments from teachers.

What Are Some Implications of Incorporating Alternative Assessment in Foreign and Second Language Programs?

Even young students know that some of them simply do not do well on tests, often not because of a failure on their part to study or prepare. Because language performance depends so heavily on the purposes for which students are using the language and the context in which it is done, the importance of opportunity for flexible and frequent practice on the part of the students can not be overestimated. In the real world, most of us have more than one opportunity to demonstrate that we can complete tasks successfully, whether at work or in social settings. So, it makes sense to provide similar opportunities for students in instruction.

Conclusion

The call for increased use of meaningful (authentic) assessments that involve language students in selecting and reflecting on their learning means that language teachers will have a wider range of evidence on which to judge whether students are becoming competent, purposeful language users. It also means that language programs will become more responsive to the differing learning styles of students and value diversity therein. Finally, language programs that focus on alternative assessment are likely to instill in students lifelong skills related to critical thinking that build a basis for future learning, and enable them to evaluate what they learn both in and outside of the language class.

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Electronic Portfolios: A New Idea in Assessment

by Anna Maria D. Lankes

Introduction

Teachers and administrators are showing increased interest in becoming part of a "new wave" of assessment in the classroom; assessment which includes authentic and performance-based measures. These methods of assessment allow students to demonstrate desired performance through real-life situations (Meyer, 1992). Such methods of assessment are not limited to multiple-choice and standardized tests, but include projects which require students to demonstrate their problem-solving skills as well as their skills in analyzing and synthesizing information. Several school districts across the United States have reported improved student performance associated with new assessment programs (Herman, 1992). Many schools are developing new methods for measuring students' progress in both the elementary and secondary classroom. One of these new assessment measures, the portfolio, has become increasingly popular, and technology is helping with its creation and management.

What is a Portfolio?

A portfolio at the K-12 education level is essentially a collection of a student's work which can be used to demonstrate his or her skills and accomplishments. An educational portfolio is more than just a group of projects and papers stored in a file folder. It includes other features such as teachers' evaluations and student self-reflections. According to the Northwest Evaluation Association, a portfolio is "a purposeful collection of student work that exhibits the student's efforts, progress, and achievements. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection" (Paulson, Paulson, & Meyer, 1991). A portfolio may be used to demonstrate a student's achievements in specific subject areas such as mathematics and science or it may be used across the curriculum to assess abilities in all subject areas.

Why use a Portfolio?

- **Developmental portfolios.** A teacher who is interested in documenting a student's improvements in writing or mathematics throughout a school year can have the student keep a developmental portfolio containing samples of the student's work along with self-evaluations of specific assignments. Such a portfolio provides specific documentation which can be used for student evaluations and parent conferences.
- **Teacher planning.** Teachers may use an existing portfolio system in order to receive information about an incoming class of students. The teacher may gain a better understanding of the ability levels of his or her students prior to the start of the school year and plan accordingly.
- **Proficiency portfolios.** Central Park East Secondary School in New York City uses portfolios as a means for determining graduation eligibility. Students at this school are required to complete fourteen portfolios which demonstrate their competence and performance in areas such as science and technology, ethics and social issues, community service, and history (Gold & Lanzoni, 1993).
- **Showcase portfolios.** A showcase portfolio can document a student's best work accomplished during an entire educational career. It can include the research papers, art work, and science experiments which best represent the student's skills and abilities.
- **Employment skills portfolios.** Businesses across the country are increasingly interested in viewing student portfolios in order to evaluate a prospective employee's work readiness skills. Students in the Michigan public schools, for example, are creating employability skills portfolios to demonstrate their skills to prospective employers (Stemmer, Brown, & Smith, 1992).
- **College admission portfolios.** Colleges and universities are using showcase portfolios to determine eligibility for admission. By requiring portfolios from prospective students, college or university admissions officers are better able to assess applicants' potential for success at their institutions.

Technology and the Creation of Computer-Based Portfolios

How to store and manage portfolio materials is a concern shared by many educators interested in implementing portfolio programs. In order to keep portfolios which would include papers, projects, and video and audio tapes for a class of students for 13 years (K-12), a school would need several additional classrooms to store this wealth of information. Many educators have been reluctant to implement portfolio assessment programs in their schools because of storage concerns like these. A likely solution to this problem is the creation and storage of portfolios using computer technology.

The terms "computer-based portfolio" and "electronic portfolio" are used to describe portfolios saved in electronic format. Electronic portfolios contain the same types of information as the portfolios discussed earlier, but the information is collected, stored, and

managed electronically. Since current technology allows for the capture and storage of information in the form of text, graphics, sound, and video, students can save writing samples, solutions to mathematics problems, samples of art work, science projects and multimedia presentations in one coherent document. A single computer with a large storage capacity can store portfolios for all of the students in a class. With more students creating multimedia projects, however, a floppy or even a hard disk might not suffice for storage. An alternative is to store student portfolios on a CD-ROM (a compact disk which stores text, sound, graphics and video). A CD-ROM can store approximately 650 MB of information or 300,000 sheets of typed text. This might include all of the portfolios for an entire grade level of students. A computer-based portfolio program also allows for easy transfer of information. An individual computer disk or CD-ROM could be created to transport a student's documents from teacher to teacher or school to school.

Solutions and Examples

There are several commercially available portfolio programs which offer teachers the ability to track student achievement. Aurbach's *Grady Profile* is one program which provides a template for teachers and students to enter work samples. Programs may include writing samples, standardized test scores, oral communication skills, and mathematics assessments. Other software programs, such as Roger Wagner Publishing's *HyperStudio* and Claris' *FileMaker Pro*, allow teachers to create their own templates for portfolio assessment. Educators can use these programs to customize portfolios to suit the needs of their classes. For example, one high school English portfolio might include outlines and drafts for each writing assignment, while another might include only the finished product along with self-reflections by the student.

One school which is involved in creating electronic portfolios for all its students is East Syracuse-Minoa High School in East Syracuse, New York. Students at this high school are creating electronic portfolios which can be sent to colleges as part of the admissions process and to potential employers to determine workplace readiness. This electronic portfolio, called "The Portfolio Manager," was created in *HyperStudio* and contains traditional information about students (transcripts, letters of recommendation, and work history) as well as student-selected work samples (writing samples, multimedia research papers, art work, and video clips from a performance in the school play). The students are responsible for updating and selecting the work samples they include in the portfolio and can select virtually any piece of work that they believe best represents their skills and abilities. Currently, students begin creating portfolios during their sophomore year and continue updating and revising the work samples throughout their high school careers. Upon completion, the portfolio can be distributed in computer disk, CD-ROM, video tape, or print versions.

Summary

The implementation of computer-based portfolios for student assessment is an exciting educational innovation. This method of assessment not only offers an authentic demonstration of accomplishments, but also allows students to take responsibility for the work they have done. In turn, this motivates them to accomplish more in the future. A computer-based portfolio system offers many advantages for both the education and the business communities and should continue to be a popular assessment tool in the "information age."

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ERIC DIGEST

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Emerging Student Assessment Systems for School Reform

Edward Roeber

Currently, much discussion is taking place about the quality of American schools, the skills needed by students, and the ways we should be assessing these achievements. Student assessment is viewed nationally as the pivotal piece around which school reform and improvement in the nation's schools turn. For example, student assessment is the key piece of Goals 2000, as well as other federal legislation such as the Elementary and Secondary Education Act (ESEA).

The result is that substantially more assessment is likely to occur in our nation's schools, and to take place in areas traditionally not assessed (such as the arts), using assessment strategies (such as performance assessments and portfolios) not typically used. States and local districts are reconsidering the models for systems of assessment and how assessment at the state and local levels can be coordinated to achieve the reforms desired in education.

Why is School Reform Occurring?

Widespread belief that schools are not helping all students achieve at the levels that are needed, has spurred efforts to reform our schools. Concerns have been raised that the ways we teach students, as well as assess them, do not lead students to acquire needed knowledge or skills, nor help them apply and use their knowledge and skills appropriately. At the national and state levels, content standards containing the types of knowledge, skills and behaviors now believed needed for all students to achieve at high levels are being developed. Starting with such efforts as the National Council of Teachers of Mathematics' Curriculum and Evaluation Standards for School Mathematics (NCTM,1989), content standards are being developed in the arts, civics, economics, English, foreign languages, geography, health education, history, physical education, science, and social studies.

School reform is also motivated by the belief that there are competencies needed for graduates to enter the workforce successfully. The Secretary's Commission on Achieving Necessary Skills developed generic competencies and foundation skills that all workers will need in the future (U.S. Department of Labor, 1991). They include flexible problem solving, respecting the desires of the customer, working well on teams, taking responsibility for one's own performance, and continuous learning and have been developed to guide the efforts of educational reform in the direction helping more students to make the transition to work successfully.

Collectively, these standards represent substantial challenges for the American schools. They imply that all students will need to achieve at much higher levels. New strategies for assessment are also implied by these content standards.

How Does Reform of Assessment Fit School Reform?

Student assessment is at the top of the list of things to tinker with by policymakers at the national and state levels, since it is viewed as a means to set more appropriate targets for students, focus staff development efforts for the nation's teachers, encourage curriculum reform and improve instruction and instructional materials in a variety of subject matters and disciplines (Darling-Hammond & Wise, 1985). Assessment is important because it is widely believed that what gets assessed is what gets taught, and that the format of assessment influences the format of learning and teaching. (O'Day & Smith, 1993). The hope of policy makers is that changes in assessment will not only bring about the needed changes in students, but also in ways schools are organized (Linn, 1987, Madaus, 1985). Interest in performance assessment has also been justified on the basis that using such measures will promote educational equity (National Center on Education and the Economy, 1989). Student assessment carries a heavy load these days!

Of course, outside pressure external on testing programs can be ignored or resisted by local educators (Smith and Cohen, 1991). There is also ample evidence of the distortions in teaching that external testing programs can create (Shepard & Smith, 1988). Rather than encourage reform of teaching, inappropriate teaching to the test may occur (as opposed to teaching to the domain covered by the test). Rather than creating opportunities for all students to learn to high levels, even new forms of assessment may lead to tracking and limiting opportunities for some students (Darling-Hammond, 1994; Oakes, 1985.)

Assessment reform should occur along with professional development, instructional development, and other strategies designed to assure that all of the changes are mutually supported. Coordination of assessment reform at the national and state levels with assessments at the local level is also important, so that each will present a coherent view of student performance, not simply be "stuck" together.

Types of Assessments

New content standards may require different assessment methods. Among the assessment techniques now being considered are short-answer, open-ended; extended-response, open-ended; individual interviews; performance events; performance tasks in which students have extended time; projects; portfolios; observations; and anecdotal records, in addition to multiple-choice exercises. A broader

repertoire of techniques is increasingly being used.

School Improvement Strategies

The information about student achievement needed at various levels of the educational system is different. Parents have different needs that teachers, who in turn, have different needs than school principals. District administrators need broader, system-wide information, while at the state level, there is concern about equity across districts and identification of state priorities. Nationally, policy makers are concerned about differences between states and how competitive American students are with their peers in other countries.

Improving student achievement can take place at each of these levels. Teachers work with an individual student in a classroom, or revamp classroom-wide instruction based on an assessment. At the school level, educators use school information to set long-and-short-range objectives and decide how to accomplish these. At the district level, educators target particular areas of the curriculum for attention. At the state level, incentives for improving instructional programs may be most important. School reform occurs at all levels of the educational system.

Useful Assessment Designs

Typically, student achievement is measured with available student test data, often using information from district or state testing programs. Information collected less formally in classrooms is not typically included in school improvement plans, even though such information could provide valuable insights into student learning.

The nature of information needs should form the basis for an assessment design. In a top-down model, policymakers develop an assessment design that meets their needs, hoping the data may be useful by persons at lower levels. An alternative is to build the assessment system needed at the local level, aggregating the information upwards to the district, state and national levels.

Another model, based on the assumption that multiple approaches will allow different users' needs to be met, is to develop a comprehensive assessment system using different assessment formats to meet different users' needs. Various assessment strategies can be implemented together at the different levels to provide for the different information needs in a coordinated, coherent manner (Darling-Hammond, 1994).

For example, local districts can adopt a portfolio system for improving instruction, while the state carries out matrix-sampling across important standards. The information collected by the state can become part of the student's portfolio, thereby strengthening the portfolio's quality. The state could also provide opportunities for teachers to learn to score the open-ended written and performance assessments, thereby enhancing teachers' capabilities of observing and rating student performances in their classrooms.

In this case, the elements of the system at the different levels build on and support the elements at other levels. It is also anticipated that information collected at the different levels can be reported in a more understandable manner, since the same standards apply in different ways.This assessment model enhances the reforms of schools so many desire.

Summary

This is indeed a time when American schools are being challenged to provide opportunities for students to achieve at much higher levels. Assessment is viewed as one of the essential elements in assisting schools to address the standards now deemed to be important in a manner that will help all students to achieve them. The major challenge for assessment is to implement these additional assessments in a coordinated manner so that the amount of assessment is supportive of the changes needed, not overly burdensome to teachers or students. Models for coordination assessment at the state, district and classroom levels appear most promising.

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Making the A: How To Study for Tests

Diane Loulou
ERIC Clearinghouse on Assessment and Evaluation

Tests are one method of measuring what you have learned in a course. Doing well on tests and earning good grades begin with good study habits. If your goal is to become a successful student, take the time to develop good study habits.

This digest offers a plan to help you study for tests. It explains how to prepare for and take tests. Techniques for taking essay, multiple choice and other types of exams are reviewed. Although these techniques may help you improve your test scores, other factors, such as class participation, independent projects and term papers also contribute toward grades.

Before the Test

Organization, planning and time management are skills essential to becoming a successful student; so start studying as soon as classes begin. Read assignments, listen during lectures and take good classroom notes. Then, reread the assignment, highlighting important information to study. Reviewing regularly allows you to avoid cramming and reduces test anxiety. The biggest benefit is it gives you time to absorb information.

Read difficult assignments twice. Sometimes a second reading will clarify concepts. If you are having difficulty with a subject, get help immediately. Meet with your instructor after class, use an alternate text to supplement required reading or hire a tutor (ask faculty members and other students for referrals).

Review, Review, Review

Plan ahead, scheduling review periods well in advance. Set aside one hour on a Saturday or Sunday to review several subjects. Keep your reviews short and do them often.

- **Daily reviews**--Conduct short before and after class reviews of lecture notes. Begin reviewing after your first day of class.
- **Weekly reviews**--Dedicate about 1 hour per subject to review assigned reading and lecture notes.
- **Major reviews**--Start the week before an exam and study the most difficult subjects when you are the most alert. Study for 2-5 hours punctuated by sufficient breaks.

Create review tools, such as flashcards, chapter outlines and summaries. This helps you organize and remember information as well as condense material to a manageable size. Use 3 x 5 cards to review important information. Write ideas, formulas, concepts and facts on cards to carry with you. Study on the bus, in waiting rooms or whenever you have a few extra minutes.

Another useful tool is a study checklist. Make a list of everything you need to know for the exam. The list should include a brief description of reading assignments, types of problems to solve, skills to master, major ideas, theories, definitions, and equations. When you begin your final study sessions, cross off items as you review them.

Study Groups

For some subjects, study groups are an effective tool. Study groups allow students to combine resources; members share an academic goal and provide support and encouragement. Such groups meet regularly to study and learn a specific subject.

To form a study group, look for dedicated students--students who ask and answer questions in class, and who take notes. Suggest to two or three that you meet to talk about group goals, meeting times and other logistics. Effective study groups are limited to five or six people. Test the group first by planning a one-time-only session. If that works, plan another. After several successful sessions, schedule regular meetings.

Set an agenda for each meeting to avoid wasting time. List the material that will be reviewed so members can come prepared. Also, follow a format. For example, begin by comparing notes to make sure you all heard the same thing and recorded important information. Spend 15-20 minutes conducting open-ended discussions on specific topics. Then, test each other by asking questions or take turns explaining concepts. Set aside 5-10 minutes to brainstorm possible test questions.

Taking an Exam

On exam day arrive early and get organized. Pay attention to verbal directions as tests are distributed. Read directions slowly. Scan the entire test, noticing how many points each part is worth and estimate the time needed for individual questions.

Before you start answering questions, write down memory aids, formulas, equations, facts and other useful information in the margins.

Check the time and pace yourself. If you get stuck on a question try to remember a related fact. Start from the general and go to the specific. Look for answers in other test questions. Often a term, name, date or other fact you have forgotten will appear somewhere else in the test. Move on to the next question if memory aids do not help. You can always go back to the question if you have time.

Test-Taking Tips for Different Types of Exams

Multiple Choice--Check the directions to see if the questions call for more than one answer. Answer each question in your head before you look at the possible answers. If you can come up with the answer before you look at the choices you eliminate the possibility of being confused by them. Mark questions you can't answer immediately and come back to them later.

When taking a multiple-choice exam guess only if you are not penalized for incorrect answers. Use the following guidelines to make educated guesses.

- ❑ If two answers are similar, except for one or two words, choose one of these answers.
- ❑ If the answer calls for a sentence completion, eliminate the answers that would not form grammatically correct sentences.
- ❑ If answers cover a wide range (5, 76, 87, 109, 500) choose a number in the middle.

For machine-graded multiple-choice tests be certain that the answer you mark corresponds to the question you are answering. Check the test booklet against the answer sheet whenever you start a new section and again at the top of each column.

True-false--If any part of a true-false statement is false, the answer is false. Look for key words, i.e., qualifiers like all, most, sometimes, never or rarely. Questions containing absolute qualifiers such as always or never often are false.

Open book--When studying for this type of test, write down any formulas you will need on a separate sheet. Place tabs on important pages of the book so that you don't have to waste time looking for tables or other critical information. If you plan to use your notes, number them and make a table of contents. Prepare thoroughly for open-book tests. They are often the most difficult.

Short answer/fill-in-the-blank--These tests require students to provide definitions or short descriptions (typically a few words or a sentence or two). Study using flashcards with important terms and phrases. Key words and facts will then be familiar and easy to remember as you answer test questions.

Verbs Commonly Used in Essay Questions

Analyze	Examine
Compare	Explain
Contrast	Illustrate
Criticize	Interpret
Define	List
Describe	Outline
Discuss	Prove
Enumerate	State
Evaluate	Summarize

Essay--When answering an essay question, first decide precisely what the question is asking. If a question asks you to compare, do not explain. Standard essay question words are listed in Box 1. Look up any unfamiliar words in a dictionary.

Before you write your essay, make a quick outline. There are three reasons for doing this. First, your thoughts will be more organized (making it easier for your teacher to read), and you will be less likely to leave out important facts. Second, you will be able to write faster. Third, if you do not have time to finish your answer, you may earn some points with the outline. Don't forget to leave plenty of space between answers. You can use the extra space to add information if there is time.

When you write, get to the point. Start off by including part of the question in your answer. For example, if the question asks, "Discuss the benefits and drawbacks of universal health care coverage to both patients and medical professionals." Your first sentence might read, "Universal health care will benefit patients in the following ways." Expand your answer with supporting ideas and facts. If you have time, review your answers for grammatical errors, clarity and legibility.

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Motivating Low Performing Adolescent Readers

by Norma Decker Collins

The focus of this *Digest* will be on motivating the low performing adolescent in a remedial reading or subject area classroom. The premise is that students who are disengaged from their own learning processes are not likely to perform well in school.

Remedial Readers at the Secondary Level

Remedial readers at the secondary level are often caught in a cycle of failure. They have frequently been involved in a heavy skills instruction program, and when "it" did not work, they were given more of the same. Thus, many disabled readers never saw reading as a language operation. They never saw reading as something they could do--it was something to be avoided.

Readers who have negative experiences with reading generally view reading as a process of getting the word right rather than an act of making sense of the material. They do not hear a voice on the page; they do not know they can skip words; they do not know that they must do different things with different kinds of materials.

Secondary teachers must help the low achieving or low performing student break the cycle of failure. Low performing students need the opportunity to revalue themselves. They need experiences with texts that are relevant. They need to acquire strategies that will result in comprehension. Building confidence is essential to improving the performance of secondary readers. Assisting and motivating low performing students is a requisite to improved performance.

Ammann and Mittelsteadt (1987) recount how the failure cycle was broken for one group of high school students. By using newspapers instead of traditional reading skills material for classroom reading and writing activities, students who had failed for years as language users experienced success as readers. Through an intervention on the part of the teacher/researcher, students were provided strategies for reading. And for the rest of us, it shows how a teacher can make a difference in the secondary classroom.

Lifelong Learning

In order for any student to become a lifelong learner, he or she must be able to handle print--environmental print, recreational print, and vocational print.

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Unfortunately, the disabled reader has often been so removed from reading as a tool for living and learning, that he or she has given up. By helping students find personal reasons to engage in print, you help them realize the ultimate goal of reading--that of constructing personal meaning. Fuchs (1987) suggests, as a first step, that teachers select books for young people that reflect the actual interests of adolescents. It is also important for teachers to have suggestions available for parents who want to help their children become active readers. By understanding why some teenagers dislike reading, parents and teachers can embark on the difficult task of encouraging students to read in developmentally appropriate ways.

Are Reading Problems Necessarily Reading-Specific?

Language scholars Moffett and Wagner, in the book *Student-Centered Language Arts and Reading K-13* (1983), contend that problems in reading are not necessarily reading-specific and that reading comprehension is not distinct from general comprehension. The skills required for comprehending texts, like identifying the main idea, recalling details, relating facts, drawing conclusions, and predicting outcomes, are operations that apply to activities in life. It is understandable that these skills have wound up as reading skills because they are demonstrated when a student reads. However, Moffett and Wagner feel that reading comprehension is merely comprehension.

Based on this definition of comprehension, we must look outside of reading as well as toward reading for instructional strategies. We must look at all low performing students--not just those who have been identified as reading disabled. We will begin by looking at 3 major causes of incomprehension: poor motivation, lack of experience, and egocentricity. Any one of these or any combination is likely to be manifested in the reading of low achieving or low performing students. Frequently, students who are not successful in the classroom have not had experiences with language in meaningful, social situations. By listening to oral and recorded reading, asking questions, dictating stories, and working in small groups, students experience the communicative nature of language (Carr, 1995; Wallace, 1995). According to Moffett and Wagner, only widespread involvement in language can solve the problem of poor motivation.

Because students at the secondary level are required to use textbooks, it is important for them to see what reading informational books has to offer. By browsing a variety of books and scanning them for something they want to know about, readers see the usefulness of reading. It is the job of teachers to construct situations where students can find personal reasons to make the effort to comprehend books.

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By doing this, reading is reinforced as a useful language operation--not seen by the student as a testing ground for self worth.

Another "reading problem" for the low performing student is lack of experiential background. When a text refers to things or concepts with which the reader has no familiarity, he or she will not comprehend the material. Films and television can help enlarge experience and supply vocabulary (Greenwood, 1989; Alex, 1988). If these options can be used to strengthen the basic competencies which students are expected to develop through reading, they will play a valuable instructional role.

Students also struggle with texts because of subjectivity. Certain words or phrases may trigger irrelevant associations for readers which interfere with an accurate reading. Irrelevant associations cause readers to ignore portions of a text or pay an inordinate amount of attention to others, so that relationships among statements are distorted and meaning is misconstrued. The learner needs to hear other viewpoints about a text and compare these to his or her own thinking.

Small group discussions are important in this regard. When a reader finds out that others read a text differently, the reader may be helped to realize that his or her interpretation was limited by a subjective view. Decreasing egocentricity is necessary for improving student performance in reading.

Necessity of a Wide Variety of Teaching Materials

There are many reasons for students lacking motivation in reading. However, a wide variety of teaching materials and teaching techniques help provide for differences in students' ability to learn. Supplementary materials like newspapers, magazines, games, films, and audio and video tapes offer additional ways for students to acquire information. Any medium which stimulates students' interests and involvement is worthy of consideration.

By asking students to complete projects at the end of their reading assignments, students may see a reason for reading. For example, developing a mural, making a diorama, or constructing a model encourages students to read a text for practical purposes. This is particularly successful when students are exploring subjects that are of interest to them. Projects or oral presentations also provide a chance for students to collaborate with others. Group work may reduce the apprehension poor readers frequently experience and motivate them to use language socially and purposefully.

Students who are not performing at grade level may not be doing their part in the learning process. This is frustrating for teachers who wonder if motivation lies entirely within their domain. It is a "Catch-22" situation. Some students have developed an indifferent attitude towards learning. By the time they get to the secondary school, that negativism or indifference is pretty well embedded (Kos, 1991). Yet, to help the low performing student succeed in school, you must dismantle the behaviors (defense mechanisms?) that surround the act of reading.

Because teachers want students to achieve in the classroom, they must continue to create contexts which promote success. It takes patience and forbearance to establish an atmosphere of trust that will encourage risk-taking on the part of the low performing student. Allowing students to choose some of the instructional materials they use, some of the topics to explore, and some of the assignments to complete enhances the likelihood that students will respond to the subject matter.

Another step that you may take involves making reading assignments more accessible. By writing a brief introduction to explain how the assigned reading fits into the rest of the chapter, the unit, or the short story, you may improve the efficiency of students' reading. The following suggestions may do the same: providing an abstract to highlight important ideas, providing an outline or list of headings to identify major concepts, supplying a list of definitions for vocabulary development, and applying a directed reading activity.

The only way to improve reading skills is to read. As educators, we must continue our efforts to motivate low performing students. Whether we make available appropriate reading material at the appropriate time, supplement students' reading processes with varied print and nonprint experiences, and/or individualize instruction in whatever way is realistic, the goal is to whet the low performing or low achieving student's appetite and foster an interest in reading that will contribute to the student's ability to lead a full, productive life.

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The National Geography Content Standards

by Joseph P. Stoltman

Geography for Life: National Geography Standards 1994 is a major contribution to social studies and geographical education. It specifies what students in American schools should learn and be able to do with regard to geography. There are six essential elements of geography into which 18 standards are grouped.

Element 1: The World in Spatial Terms. Maps, photographs, and satellite images are principal tools for investigating the relationships between people, places, and environments. When information is shown using those tools, it is in a spatial context. The spatial context for geography is the Earth. The geographically informed person knows and understands: (Standard 1) How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective. (Standard 2) How to use mental maps to organize information about people, places, and environments in a spatial context. (Standard 3) How to analyze the spatial organization of people, places, and environments on Earth's surface.

Element 2: Places and Regions. People are attached to particular places and regions. Regions and places have been given meaning by people, and in turn those places and regions help people to organize and understand the complex world. The geographically informed person knows and understands: (Standard 4) The physical and human characteristics of places. (Standard 5) That people create regions to interpret Earth's complexity. (Standard 6) How culture and experience influence people's perceptions of places and regions.

Element 3: Physical Systems. The Earth is always changing. Many of the changes are the result of physical processes. Geography includes four types of physical processes that are important to understanding the Earth. The atmosphere (weather and climate), the lithosphere (plate tectonics, erosion), the hydrosphere (oceans, water cycle), and biosphere (ecosystems, vegetation) are the physical systems that shape and change the surface of the Earth. The geographically informed person knows and understands: (Standard 7) The physical processes that shape the patterns of Earth's surface. (Standard 8) The characteristics and spatial distribution of ecosystems on Earth's surface.

Element 4: Human Systems. Human systems are in constant change on the Earth. People migrate, increase, decrease, or stabilize their numbers in different places, and learn ways of living that distinguish a group from other groups. Human systems are comprised primarily of population, culture, settlement, and the cooperation, conflicts, and relationships among those components. The geographically informed person knows and understands: (Standard 9) The characteristics, distribution, and migration of human populations on Earth's surface. (Standard 10) The characteristics, distribution, and complexity of Earth's cultural mosaics. (Standard 11) The patterns and networks of economic interdependence on Earth's surface. (Standard 12) The processes, patterns, and functions of human settlement. (Standard 13) How the forces of cooperation and conflict among people influence the division and control of Earth's surface.

Element 5: Environment and Society. Human history has witnessed many different instances of people interacting with the environment. People sometimes adjust their lives to fit the environmental conditions, while in other settings the natural environment has been greatly altered to meet the needs of people. Some societies have benefitted greatly from environmental resources and others have created environmental hazards and crises in the way the resources have been used. The geographically informed person knows and understands: (Standard 14) How human actions modify the physical environment. (Standard 15) How physical systems affect human systems. (Standard 16) The changes that occur in the meaning, use, distribution, and importance of resources.

Element 6: The Uses of Geography. Geography provides a means to look at the past, present, and future. Events and issues, regardless of their past, present, or future nature, have a geographical context. The geographical context is important to explaining what happened and where, and what the consequences were or might be, both historically and geographically. The geographically informed person knows and understands: (Standard 17) How to apply geography to interpret the past. (Standard 18) How to apply geography to interpret the present and plan for the future.

Developing Geographic Skills. Five skill sets for geography are presented with the content standards. The skills are (1) asking geographic questions; (2) acquiring

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geographic information; (3) organizing geographic information; (4) analyzing geographic information; and (5) answering geographic questions. This distinction between skills and content is important. The standards make it clear that geography skills are the means to access and address the content in the standards. The five skills and suggestions for their inclusion focus upon critical thinking and incorporate such processes as knowing, inferring, analyzing, judging, hypothesizing, generalizing, predicting, and decision making. While the skills are clearly identified, they must be integrated within the numerous content standard suggestions across the students' K-12 experiences.

Applying the Standards to Curriculum and Instruction. Across the K-12 range of curricula, a serious effort should be made to include content standards from geography at every grade level. There are several compelling reasons why geography standards should be used: (1) The standards reflect the scholarly contributions of geography to student learning in grades K-12. (2) There is considerable agreement among constituent groups that the standards include what young people in the United States should know and be able to do in using geography. (3) The universe of geographic content is reduced to a manageable level within the standards. (4) The standards may be mixed and matched in various scopes and sequences to provide for a content rich social studies. (5) The standards will link all schools that use them with common threads in the curriculum and will provide continuity in content selection for students who change residences and schools during their K-12 educational experience.

The true test of using a content standard from geography is its application with students in classrooms. They are inclusive of the five fundamental themes of geography that have been widely accepted and especially useful to teachers since 1984 (Joint Committee on Geographic Education). These themes are location, place, human/environment relationships, movement, and regions.

Geography for Life: National Geography Standards 1994 is available for $9.00 from the National Geographic Society, Post Office Box 1640, Washington, DC 20013-1640. Credit card holders may call 800/368-2728 to place an order.

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National Standards for Civics and Government

by Charles F. Bahmueller

It has been recognized since the founding of the American republic that education has a civic mission—to foster the development of informed, responsible, and humane citizens who participate in democratic governance and are committed to the values and principles of constitutional democracy as practiced in the United States. In this view, the well-being of a free society ultimately depends on the character of its citizens—on their moral and civic capacities and virtues, on their willingness to fulfill their roles competently as the ultimate arbiters of the purpose and direction of the body politic of which they are members. To help achieve these goals, voluntary National Standards for Civics and Government for students in kindergarten through twelfth grade have been developed by the Center for Civic Education. More than three thousand teachers, scholars, parents, elected officials, and representatives of business and industry contributed to the Standards' development.

The Standards are organized around five central questions dealing with the following subjects: (1) the nature and necessity of government, (2) the foundations of American constitutionalism, (3) the functioning of American government and the place of democratic values and principles within it, (4) America's relations with the world, and (5) the roles of the citizen. Each of the five questions is followed by a statement which summarizes the standards that follow and presents reasons why citizens should be knowledgeable about them.

The first of the five overarching questions: What are civic life, politics, and government? Students should know why politics and government are necessary and integral elements of any society. There are various views about why this is so. Aristotle believed that political society is the result of a natural process; others argue that government is necessary because without it people are unable to reach goals or deal with many common problems, such as the national defense or the regulation of domestic and international commerce.

This standard also asks students to think about the purposes of government. Some governments seek to protect certain individual rights; others pursue such purposes as achieving a religious vision or promoting a secular utopian ideology. Students should see that the purposes adopted for government affect the relationships between the individual and government, and between government and society as a whole. Thus, the purposes served by the government determine whether a society is or is not free.

The standards also emphasize the importance of constitutions and constitutionalism, beginning with the nature and purposes of constitutions. The Standards ask students to distinguish between limited or constitutional government and unlimited government, and between constitutions that are operational and that merely are facades for despotic regimes. Students should know what "the rule of law" means, and why it is a characteristic of limited government. They should also know that limited government protects, within legal boundaries, an autonomous, spontaneous, and self-organizing social sphere known as "civil society," and they should understand how civil society can maintain limited government. Further, students should understand the relationship of limited government to political and economic freedom. They should know what conditions are required for constitutional government to flourish. Finally, students should be aware of alternative ways other countries organize constitutional government.

The second of the Standards' five principal questions: What are the foundations of the American political system? Students are asked to consider the basic ideas of American constitutional democracy. The American idea of constitutionalism, for example, is that legitimate government is limited both in its purposes and the means employed to pursue these purposes. Students are asked to explore the intellectual and political background to these ideas from Magna Carta (1215) onward, including the development of popular sovereignty and the idea of constitutions as "higher law." Students should also understand how the Constitution has shaped the character of American society and what the distinctive characteristics of American society are. In addition, students are to understand the character of American political culture, the unique features of national identity and political life.

Students are to understand two strands of civic values central to the American founding and influential thereafter. They are classical liberalism, which emphasizes the protection of individual rights as a central purpose of government; and classical republicanism, which emphasizes the primacy of civic virtue and the common good. Students are also to understand that conflicts arise among these values. Private rights, for example, may conflict with prevailing conceptions of public good. They should realize that there are disparities, sometimes important ones, between American ideals and their realization.

The third central question: How does the government established by the Constitution embody the purposes, values, and principles of American democracy? The Standards ask students to consider the ways and means the Constitution's framers devised to curb the potential abuse of power. The Constitution limits power by dispersing it. Federalism disperses power by creating several layers of government. Further, power is separated and shared through a complex system of checks and balances in which each branch of government shares some powers of the others so that none is unchecked.

Charles F. Bahmueller is a political philosopher at the Center for Civic Education. He was the general editor of *CIVITAS: A Framework for Civic Education* and a co-developer of the *National Standards for Civics and Government*.

It is essential that students grasp the basic functions and organization of the institutions of government. They should know what the major responsibilities of the federal government are in domestic and foreign policy, and how state and local government are organized and discharge their responsibilities. Because state and local government provide most of the services citizens receive and are often most accessible, citizens should be knowledgeable about them.

Citizens should understand the function of law in a free society and its place in the American system. They should see how the federal structure of American government provides numerous opportunities to influence the making and executing of law. In viewing this complex process, they should understand what public opinion and the public agenda are, and how political communication via the mass media affect them. Finally, citizens should have some knowledge of political parties, campaigns, and elections in the political system; and they should know something about the many interest groups in American politics.

The fourth central question the Standards address: What is the relationship of the United States to other nations and to world affairs? To meet these standards, citizens must first understand how the world is organized politically; that is, how it is divided into nation-states, and how these nation-states interact. They should also be able to identify the roles of major governmental and nongovernmental international organizations.

Secondly, citizens need an understanding of the history of American relations with the world. They should know how domestic politics and constitutional principles affect the nation's role in the world. They should know how American foreign policy is made, and the means and ends of foreign policy. For example, they should be able to explain the idea of the national interest, as well as the influence of constitutional values and principles on foreign policy. Finally, they should have a grasp of the reciprocal influence of the United States of America and other nations.

The fifth and final question addressed by the Standards: What are the roles of the citizen in American democracy? This is the culmination of the document and focuses upon the ideal outcome of civic education. Democratic citizens are *active*; "democracy is not a spectator sport." If they are to consent to their roles, citizens must know what citizenship is, what their personal, political, and economic rights are, and what responsibilities those rights entail. Among these responsibilities are voting in public elections and otherwise participating in civic life as a volunteer in community organizations, and as a constructive critic of public institutions, officials, and policies.

A key section of the Standards emphasizes how citizens take part in civic life. To understand the life of citizenship, they must be adept at civic arts and know the avenues available for participation. They need to understand the difference between social and political participation, and grasp such notions as the distinction between civil disobedience and revolution or rebellion. Above all, they must see how democracy depends upon attentive, knowledgeable, and competent citizens who care about their fellow citizens and their country.

The *National Standards for Civics and Government* is available from the Center for Civic Education, 5146 Douglas Fir Road, Calabasas, CA 91302-1467. Call toll free, 800/350-4223 or FAX: 818/591-9330. You may order 1-9 copies for $12.00 per copy. Ten or more copies are $11.00 per copy. Add 10% for shipping and handling costs.

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ERIC CLEARINGHOUSE ON URBAN EDUCATION

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OPPORTUNITY TO LEARN STANDARDS: THEIR IMPACT ON URBAN STUDENTS

Common sense dictates that in order for students to achieve they must have appropriate opportunities to learn. The concept of "opportunity to learn" (OTL) strategies was first introduced several decades ago and was defined by a narrow set of instructional components. Since then, educators and policy makers have incorporated many additional criteria into the OTL concept, some specifically to ensure an equal education for disadvantaged and minority students.

Despite recent attention to OTL strategies, most schools do not view them as either standards to be met or as indicators of educational quality. In fact, a survey of school districts revealed that most do not collect data related to OTL, and some are not even aware of the concept (Stevens & Grymes, 1993).

Origins of OTL

OTL as a Measurement Tool

The original purpose of OTL measures, when introduced by the International Association for the Evaluation of Educational Achievement (IEA), was simply to describe aspects of the education process. To determine whether cross-national differences in students' mathematics achievement were caused by differences in students' learning experiences rather than in their ability to master the subject, IEA developed measures for quantifying the instruction that students had received in a subject prior to testing (McDonnell, 1995).

Since that time, as the positive impact of well-designed OTL strategies on student achievement became clearer, they have been used to indicate overall educational quality, and, more specifically, the availability and use of education resources. Further, comparing the wide OTL differences among schools in the U.S. and resulting differences in student achievement can demonstrate educational inequity (Guiton & Oakes, 1995). Thus, the Hawkins-Stafford Education Amendments of 1988 mandated the development of OTL indicators to measure the effectiveness of Federally-funded educational programs. The resulting report by the Special Study Panel on Education Indicators (SSPEI, 1991) included a range of measurable indicators that covered both classroom experience and the overall school environment.

OTL as a Set of Standards

Many education policy makers believe that setting OTL standards will help schools, particularly those in poor urban areas, appreciate their essentiality to the educational infrastructure and make developing them a priority. Therefore, drafters of the voluntary education standards included "school delivery" standards in their reports. In particular, the National Council on Education Standards and Testing (NCEST, 1992), commissioned by Congress to determine the feasibility of national standards and assessments, asserted that OTL standards are necessary to help close the achievement gap between advantaged and disadvantaged students. The following year, the Clinton Administration's Goals 2000: Educate America Act also called for the establishment of OTL standards.

OTL as Policy

The willingness of policy makers to commit to OTL standards varies widely. Some believe that the school infrastructure should not be subject to Federal recommendations; a few even question whether it should be subject to state or local government policy. Also, some officials question the extent and effect of educational disadvantage experienced by urban and minority students (Elmore & Fuhrman, 1995).

OTL supporters, conversely, consider the establishment of standards to "represent a social contract between schools and the larger community" (McDonnell, 1995, p. 312), and some argue that students should not be held to any performance standards at all unless their schools meet stringent OTL standards. A group in favor of OTL strategies but opposed to legislating standards points out that the best way for states to enhance OTL is to give local agencies the resources and freedom to reform schools overall (Elmore & Fuhrman, 1995).

There are several practical impediments to instituting standards. The largest is their likely cost. Another is the threat of possible lawsuits arising from the position that a school has violated the OTL standards mandate.

OTL standards remain in the draft stage at the Federal level, and would be voluntary even if promulgated. Some states, however, such as New Jersey and Texas, have already legislated standards, though usually mandating nothing more specific than an "efficient" education. Lawsuits dealing with equitable distribution of education resources are wending their way through state courts, and may ultimately result in the refinement of the states' ambiguous language about student educational rights (O'Day & Smith, 1993). In addition, OTL standards may be instituted as the result of lawsuits dealing with school finance, student assessment, or unequal opportunity (McDonnell, 1995).

OTL as Assessment

Evaluating a school's OTL can provide information about whether the school has adequate resources, is deploying them effectively, and is providing equal educational access (Darling-Hammond, 1994). Comparing OTL evaluations across schools can help parents decide where to educate their children. OTL evaluation can also put data on student achievement into context, making it more comparable across student ethnicity and sex, as well as schools and school districts.

The Nature of OTL Strategies

Current general school reform programs use OTL strategies, since most strive to align all components of a student's educational experience in a way that maximizes learning (O'Day & Smith, 1993). In addition, new cognitive science research providing insights on how students learn, and research suggesting the impact of race, discrimination, and segregation on learning, indicate ways to teach students with different learning styles and various ethnicities most effectively (Baratz-Snowden, 1993). However, many schools either

do not consciously relate OTL strategies to student achievement or reject them as luxuries they cannot afford. Some strategies, however, can be implemented fairly easily.

Curriculum and Instruction

Access to Courses

All students should have access to high level courses that will allow them to meet performance and content standards and provide them with good career opportunities (Oakes, 1989; Smith & Day, 1993).

Curriculum

Curriculum should:

- meet the content standards for the subject,
- be logically integrated with other coursework,
- reflect the challenges of real life problems,
- present material in a context relevant to students, and
- be as free as possible from hidden bias (NCEST, 1992; SSPEI, 1991; Darling-Hammond, 1994).

Time

- Teachers should spend adequate time covering the content in class.
- Students should have time to learn content on their own.
- Schools should emphasize more important curricula by assigning more class time for it.
- Schools should provide students with time to do general academic work on the campus (Oakes, 1989).

Teacher Competence

Pre- and in-service teacher training should:

- lead to mastery of course content and techniques to teach it meaningfully, with particular attention to the material in the content standards, and
- include strategies for reaching diverse student populations and students with different learning styles (SSPEI, 1991; NCEST, 1992).

School Organization

Resources

- Schools should have enough physical space to accommodate all their students safely.
- Schools should have an adequate number of teachers and classrooms to ensure optimum class size.
- Students should have access to textbooks and educational facilities.
- Teachers should have the materials, time, private space, and support staff they need for lesson preparation and professional development.
- Schools should establish curricular priorities, ensure appropriate teacher assignments, and provide students with needed supports (Oakes, 1989; SSPEI, 1991).

Environment and Culture

- The school building should be clean, safe from hazards, and in good repair.
- The school culture should foster learning and demonstrate concern for students' well-being.
- Schools should promote respect for diversity and protect student populations from discrimination.
- Staff and students should be expected to behave respectfully toward each other, and feel protected from potential violence (SSPEI, 1991).

Ancillary Services

Schools and communities must take a comprehensive approach to student health and social service needs.

Strategies should include immunization; physical and mental health care services; protection from unsafe and violent environments; and substance abuse, sex, and pregnancy counseling.

Schools or communities should ensure that teachers, counselors, social workers, and other professionals work together to best meet students' needs and to deliver comprehensive services (Jackson, 1993; Berry, 1993).

Conclusion

Whether or not educational standards are instituted, the debate can serve to increase public awareness of the relationship between opportunity to learn strategies and achievement. If schools are encouraged to focus on their ability to promote learning, student performance will improve even in the absence of national or state standards.

— Wendy Schwartz

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ERIC CLEARINGHOUSE ON Counseling And Student Services

ERIC DIGEST

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Portfolios For Assessment And Instruction

Judith A. Arter, Vicki Spandel and Ruth Culham

Portfolios are scarcely a new concept, but renewed interest, fueled by the portfolio's perceived promise for both improving assessment and motivating and involving students in their own learning, has recently increased their visibility and use. The definition of a portfolio varies some, but there seems to be a general consensus that a portfolio is a purposeful collection of student work that tells the story of student achievement or growth. (Portfolios are not folders of all the work a student does.) Within this limited definition there are portfolio systems that promote student self-assessment and control of learning; support student-led parent conferences; select students into special programs; certify student competence; grant alternative credit; demonstrate to employers certain skills and abilities; build student self-confidence; and evaluate curriculum and instruction.

Because there is no single correct way to "do" portfolios, and because they appear to be used for so many things, developing a portfolio system can spell confusion and stress, much coming from not realizing that portfolios are a means to an end and not an end in themselves. More specifically, confusion occurs to the extent there is lack of clarity on: (a) the purpose to be served by the portfolio, and (b) the specific skills to be developed or assessed by the portfolio.

It is important to keep in mind that there are really only two basic reasons for doing portfolios--assessment or instruction. Assessment uses relate to keeping track of what students know and can do. Instructional uses relate to promoting learning--students learn something from assembling the portfolio.

Instructional Uses

The perceived benefit for instruction is that the process of assembling a portfolio can help develop student self-reflection, critical thinking, responsibility for learning, and content area skills and knowledge. (It is important to point out that most of the evidence to support these claims comes from logical argument and anecdotes. There exists very little "hard" evidence that demonstrates the impact of portfolios on students.)

These benefits aren't automatic; they have to be built into the portfolio system. Suppose you are a teacher of writing. You want students to improve their ability to write, and become skilled self-assessors to improve their writing. Using portfolios, what things would need to be in place? First, students need time and instruction in writing. But in addition, you and they need a clear and explicit vision of what it means to write well. How can students become skilled self-assessors if they don't know the target at which they are aiming?

This vision is often expressed using criteria that define writing performance across a range of proficiency levels. Clear criteria might specify, for instance, that a strong piece of writing would have elaborated ideas, rich with vivid details; or an introduction that draws the reader in while setting up what is to follow; or engaging, expressive voice. These criteria, which describe what it means to write well, not only serve as a guide to revision, but they provide students with a vocabulary for thinking, talking and writing about writing. Students who internalized these criteria could use them to revise their work, reflect on it, and set goals. The student could then use a portfolio to create a collection of best writing, or diverse writing (poetry, exposition, persuasive essays, journalism, stories), or a process portfolio showing how one piece evolved from brainstorming through publication, or a growth portfolio showing how her revision skills had improved.

Ironically, the instructional benefits of portfolios are not dependent on the portfolios. Close examination of work, comparison over time, identification of strengths and weaknesses through good criteria that define quality, goal setting, connecting personal best or favorite work with who students are becoming as learners: all can occur when the vision for success is clearly defined. What is really important is not the portfolio itself so much as what students learn by creating. Students can review and reflect on their work regularly whether or not they make a portfolio. The portfolio is a means to the end, not the end itself.

A classic example of an instructional portfolio system is the Arts PROPEL secondary creative writing, visual arts and music portfolios in Pittsburgh Public Schools. The goals are to increase achievement levels and have students take control of their own learning through systematic reflection on work and goal setting. (See Yancey, 1992; Camp, 1992; and ASCD, 1992, for additional discussion of instructional uses.)

Assessment Uses

The perceived benefits for assessment are that the collection of multiple samples of student work over time enables us to (a) get a broader, more in-depth look at what students know and can do; (b) base assessment on more "authentic" work; (c) have a supplement or alternative to report cards and standardized tests; and (d) have a better way to communicate student progress to parents. Large-scale assessment (assessment outside of and across classrooms) tends to focus on reasons (a) and (b). Teachers tend to like portfolios for reasons (c) and (d). We will look at three common assessment uses of portfolios and then discuss some assessment issues.

Certification of Competence. A "passportfolio" shows readiness to move on to a new level of work or employment. For example, the Science Portfolio is an optional part of the Golden State Examination (California State Department of Education, 1994), a large-scale assessment for high school students. It is produced during a year of science and contains a "problem solving investigation," a "creative expression" (presenting a scientific idea in a unique and original manner), a "growth through writing" that demonstrates progress in understanding a scientific concept over time, and self-reflection that enlarges on the entries. Performance criteria have been developed to judge each

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type of entry.

A higher stakes large-scale example is associated with "Certificate of Mastery" efforts in several states. Plans in Oregon call for portfolios to illustrate student progress toward (in the lower grades) or mastery of (by about grade 10) the state's eleven major goals for students.

Tracking Growth Over Time. A growth portfolio is a chronological collection that shows how skills, attitudes, etc. have changed over time. Early works are contrasted with later pieces. A large-scale example comes from Juneau, Alaska--The Integrated Language Arts Portfolio used in the primary grades. The portfolio is designed to replace report cards and standardized tests as ways to demonstrate growth and achievement. Growth is tracked using "developmental continuums," which describe stages of development for reading, writing, speaking, and listening. Student status on the continuum is marked at several designated times during the school year. Teacher judgments of developmental stage are backed up with samples of student work.

Accountability. Accountability uses relate to demonstrating to the community the impact of the education. A large-scale example is Vermont's grade 4 and 8 math portfolios. Students place 5 to 7 items in their portfolio to demonstrate their competence as problem solvers. The work is assessed using performance criteria for problem solving and math communication. An example at the classroom level is student-led parent conferences in which students prepare portfolios in order to demonstrate to parents what they have learned. (See Little & Allen, 1988, for an example.)

Assessment Issues. Assessment uses of portfolios, especially large-scale, high-stakes uses (for example, high school graduation), are not without controversy. Some of these issues are: 1.What is the extent to which we need to "standardize" the portfolio process, content, and performance criteria so that results are comparable? 2. Is it feasible to accurately and consistently assess student skills through portfolios? Won't this be costly? (Rand Corporation's 1992 study of the Vermont portfolio system provides an intriguing analysis of this issue.) 3. How do we get teacher buy-in? After all, teachers will be responsible for making sure that portfolios get assembled properly. 4. Will the conclusions we draw about students from their portfolios be valid? The work may not really be the students' best, or may be someone else's entirely. There are, as yet, no definitive answers to these questions, although many fear that high-stakes uses of portfolios will destroy their instructional usefulness.

Consensual Points of View

There appear to be several points on which most people agree:

Portfolios are a means to an end, not an end in themselves. The user must have a clear vision of what the "end" is.

Purpose will influence all other design and use decisions. Consider the two major purposes examined above. Portfolio systems that have assessment as the primary purpose tend to: be more structured (there is more uniformity as to the items that are placed in the portfolio and the times at which they are entered); develop performance criteria primarily to allow "raters" to judge student status and monitor student growth; result in portfolios that belong to the institution; use self-reflection to gain insight about student achievement and progress; and require more time and skills for teachers to manage. Portfolios that are used for instruction tend to: belong more to the student; be less structured; develop performance criteria for use by students for self-reflection; treat student self-reflection as essential for learning; and require more time and skills for students to manage. Once the purpose is clear, questions about what goes in, who decides, use of criteria, and how self-reflection is used are much easier and more logical.

There must be a clear vision of achievement targets for students. Ask this important question: What is my vision of success for my students? If you can answer this question *very clearly* you will find the process of creating portfolios much easier.

There must be student involvement in the portfolio process. Student involvement includes selecting portfolio content, developing criteria for success, and self-reflection. Even those portfolios closest to the "assessment" end of the continuum recognize the benefit from involving students in the process. If teachers put portfolios together for students, not only is this a tremendous burden for them, students learn nothing from the process. Some authors even take the position that if any other use takes precedence over instruction, portfolios will fall victim tothe same issues as past large-scale assessment attempts.

Clear and complete performance criteria are essential. For assessment purposes, we use criteria to generate scores or grades for students. However, the major value of criteria is that they assist us to articulate a clear vision of our goals for students and a vocabulary for communicating with students about these targets. Students could be partners in their development.

Conclusion

Strong portfolio systems are characterized by a clear vision of the student skills to be addressed, student involvement in selecting what goes into the portfolio, use of criteria to define quality performance and provide a basis for communication, and self-reflection through which students share what they think and feel about their work, their learning environment and themselves.

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Digest

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Practical Ideas on Alternative Assessment for ESL Students

Jo-Ellen Tannenbaum, Montgomery County Public Schools (MD)

Many educators have come to recognize that alternative assessments are an important means of gaining a dynamic picture of students' academic and linguistic development. "Alternative assessment refers to procedures and techniques which can be used within the context of instruction and can be easily incorporated into the daily activities of the school or classroom" (Hamayan, 1995, p. 213). It is particularly useful with English as a second language students because it employs strategies that ask students to show what they can do. In contrast to traditional testing, "students are evaluated on what they integrate and produce rather than on what they are able to recall and reproduce" (Huerta-Macías, 1995, p. 9). Although there is no single definition of alternative assessment, the main goal is to "gather evidence about how students are approaching, processing, and completing real-life tasks in a particular domain" (Huerta-Macías, 1995, p. 9). Alternative assessments generally meet the following criteria:

- Focus is on documenting individual student growth over time, rather than comparing students with one another.
- Emphasis is on students' strengths (what they know), rather than weaknesses (what they don't know).
- Consideration is given to the learning styles, language proficiencies, cultural and educational backgrounds, and grade levels of students.

Alternative assessment includes a variety of measures that can be adapted for different situations. This Digest provides examples of measures that are well suited for assessing ESL students.

Nonverbal Assessment Strategies

Physical Demonstration. To express academic concepts without speech, students can point or use other gestures. They can also be asked to perform hands-on tasks or to act out vocabulary, concepts, or events. As a comprehension check in a unit on Native Americans, for example, teachers can ask students to respond with thumbs up, thumbs down, or other nonverbal signs to true or false statements or to indicate whether the teacher has grouped illustrations (of homes, food, environment, clothing, etc.) under the correct tribe name. The teacher can use a checklist to record student responses over time.

Pictorial Products. To elicit content knowledge without requiring students to speak or write, teachers can ask students to produce and manipulate drawings, dioramas, models, graphs, and charts. When studying Colonial America, for example, teachers can give students a map of the colonies and labels with the names of the colonies. Students can then attempt to place the labels in the appropriate locations. This labeling activity can be used across the curriculum with diagrams, webs, and illustrations.

To culminate a unit on butterflies, teachers can ask beginning ESL students to illustrate, rather than explain, the life cycle of butterflies. Students can point to different parts of a butterfly on their own drawing or on a diagram as an assessment of vocabulary retention. Pictorial journals can be kept during the unit to record observations of the butterflies in the classroom or to illustrate comprehension of classroom material about types of butterflies, their habitats, and their characteristics.

K-W-L Charts

Many teachers have success using K-W-L charts (what I *know*/what I *want* to know/what I've *learned*) to begin and end a unit of study, particularly in social studies and science. Before the unit, this strategy enables teachers to gain an awareness of students' background knowledge and interests. Afterward, it helps teachers assess the content material learned. K-W-L charts can be developed as a class activity or on an individual basis. For students with limited English proficiency, the chart can be completed in the first language or with illustrations.

Sample K-W-L Chart

K	W	L
Lincoln was important.	Why is Lincoln famous?	Lincoln was President of the U.S.
His face is on a penny.	Was he a good President?	He was the 16th President.
He's dead now.	Why is he on a penny?	There was a war in America when Lincoln was President.
I think Lincoln was a President.	Did he have a family?	He let the slaves go free.
He was a tall person.	How did he die?	Two of his sons died while he was still alive.

Before a unit of study, teachers can have students fill in the K and W columns by asking them what they know about the topic and what they would like to know by the end of the unit. This helps to keep students focused and interested during the unit and gives them a sense of accomplishment when they fill in the L column following the unit and realize that they have learned something.

Oral Performances or Presentations

Performance-based assessments include interviews, oral reports, role plays, describing, explaining, summarizing, retelling, paraphrasing stories or text material, and so on. Oral assessments should be conducted on an ongoing basis to monitor comprehension and thinking skills.

When conducting interviews in English with students in the early stages of language development to determine English profi-

ciency and content knowledge, teachers are advised to use visual cues as much as possible and allow for a minimal amount of English in the responses. Pierce and O'Malley (1992) suggest having students choose one or two pictures they would like to talk about and leading the students by asking questions, especially ones that elicit the use of academic language (comparing, explaining, describing, analyzing, hypothesizing, etc.) and vocabulary pertinent to the topic.

Role plays can be used across the curriculum with all grade levels and with any number of people. For example, a teacher can take on the role of a character who knows less than the students about a particular subject area. Students are motivated to convey facts or information prompted by questions from the character. This is a fun-filled way for a teacher to conduct informal assessments of students' knowledge in any subject (Kelner, 1993).

Teachers can also ask students to use role play to express mathematical concepts. For example, a group of students can become a numerator, a denominator, a fraction line, a proper fraction, an improper fraction, and an equivalent fraction. Speaking in the first person, students can introduce themselves and their functions in relationship to one another (Kelner, 1993). Role plays can also be used in science to demonstrate concepts such as the life cycle.

In addition, role plays can serve as an alternative to traditional book reports. Students can transform themselves into a character or object from the book (Kelner, 1993). For example, a student might become Christopher Columbus, one of his sailors, or a mouse on the ship, and tell the story from that character's point of view. The other students can write interview questions to pose to the various characters.

Oral and Written Products

Some of the oral and written products useful for assessing ESL students' progress are content area thinking and learning logs, reading response logs, writing assignments (both structured and creative), dialogue journals, and audio or video cassettes.

Content area logs are designed to encourage the use of metacognitive strategies when students read expository text. Entries can be made on a form with these two headings: What I Understood/ What I Didn't Understand (ideas or vocabulary).

Reading response logs are used for students' written responses or reactions to a piece of literature. Students may respond to questions–some generic, some specific to the literature–that encourage critical thinking, or they may copy a brief text on one side of the page and write their reflections on the text on the other side.

Beginning ESL students often experience success when an expository *writing assignment* is controlled or structured. The teacher can guide students through a pre-writing stage, which includes discussion, brainstorming, webbing, outlining, and so on. The results of pre-writing, as well as the independently written product, can be assessed.

Student writing is often motivated by content themes. Narrative stories from characters' perspectives (e.g., a sailor accompanying Christopher Columbus, an Indian who met the Pilgrims, a drop of water in the water cycle, etc.) would be valuable inclusions in a student's writing portfolio.

Dialogue journals provide a means of interactive, ongoing correspondence between students and teachers. Students determine the choice of topics and participate at their level of English language proficiency. Beginners can draw pictures that can be labeled by the teacher.

Audio and video cassettes can be made of student oral readings, presentations, dramatics, interviews, or conferences (with teacher or peers).

Portfolios

Portfolios are used to collect samples of student work over time to track student development. Tierney, Carter, and Desai (1991) suggest that, among other things, teachers do the following: maintain anecdotal records from their reviews of portfolios and from regularly scheduled conferences with students about the work in their portfolios; keep checklists that link portfolio work with criteria that they consider integral to the type of work being collected; and devise continua of descriptors to plot student achievement. Whatever methods teachers choose, they should reflect with students on their work, to develop students' ability to critique their own progress.

The following types of materials can be included in a portfolio:

- Audio- and videotaped recordings of readings or oral presentations.
- Writing samples such as dialogue journal entries, book reports, writing assignments (drafts or final copies), reading log entries, or other writing projects.
- Art work such as pictures or drawings, and graphs and charts.
- Conference or interview notes and anecdotal records.
- Checklists (by teacher, peers, or student).
- Tests and quizzes.

To gain multiple perspectives on students' academic development, it is important for teachers to include more than one type of material in the portfolio.

Conclusion

Alternative assessment holds great promise for ESL students. Although the challenge to modify existing methods of assessment and to develop new approaches is not an easy one, the benefits for both teachers and students are great. The ideas and models presented here are intended to be adaptable, practical, and realistic for teachers who are dedicated to creating meaningful and effective assessment experiences for ESL students.

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Priority on Learning: Efficient Use of Resources

By Lori Jo Oswald

Because school budgets are limited and becoming more so, the wise use of school finances to enhance student learning is imperative. This Digest looks at the ways public schools are redistributing existing resources and changing policies to increase student academic achievement.

What Are the Most Effective Means for Schools to Use Money?

Determining the connection between school inputs and student outcomes is a challenging task, and researchers have arrived at conflicting conclusions. According to Kazal-Thresher (1993), some early studies "showed a significant relationship between inputs, such as teacher quality, class size or per pupil expenditures, and student outcomes, while others did not."

Recent studies, using better data and more sophisticated analyses, have shown a correlation, says Kazal-Thresher. For example, differences in the quality of schooling accounted for between one-quarter and one-third of the variation in students' standardized reading scores among school districts in Texas. Kazal-Thresher advises schools to hire teachers with stronger literacy skills, avoid exceeding a student-teacher ratio of 18 to 1, and retain experienced teachers to "produce higher test scores in exchange for more money."

Good teachers and performance incentives that reward schools and teachers for improving student performance are two variables that lead to increased student achievement, Hanushek (1994) believes.

Money matters, the Committee on Economic Development (CED 1994) concludes, "but only if schools are organized to use it effectively to promote achievement." School boards and superintendents must "ensure that sufficient funds get to the classroom to improve learning." According to the CED:

- District policies should induce schools to reallocate expenditures for more effective uses within current real spending levels.
- Individual schools must have greater control of resources.
- Increases in real resources should be tied to progress toward agreed-upon achievement goals in a school investment plan or performance contract with the district.
- Such investment plans should take the different costs into account for schools to educate students of different backgrounds and needs.

How Are Districts Cutting Costs?

Critics say that increases in school expenditures are often applied toward vague administrative functions and goals instead of being directly targeted for improving student outcomes. School district administrators are responding to such complaints in several ways.

One method is streamlining administration and support-service costs. For example, when site-based councils assume responsibility for budgeting, personnel, and curriculum decisions at the school site, fewer district administrators are necessary. New functions and personnel are not added without eliminating those that are "duplicative or no longer necessary" (CED).

The Texas Office of the State Auditor (1993) recently reviewed spending and found that some $185 million could be saved annually by cutting costs outside the classroom. Examples include cutting travel expenses, buying the lowest cost supplies, soliciting bids for services, reducing excessive staff positions and salaries, and eliminating overgenerous benefits. Such reductions do not directly affect the education of children. The auditor's office compared district figures and found no correlation between higher costs and student achievement.

How Do State Policies Make a Difference?

State policies can sometimes impede improvements at the district and school levels. Hanushek and colleagues (1994) find fault with state finance programs that dictate overall resources, for such policies often "penalize districts for saving money or for organizing schools in nonstandard ways. Worse, they sometimes reduce or remove funds when student outcomes improve." State policies must focus on school outcomes through goal-setting instead of management.

Lays (1991) argues that policy reforms of the last decade have focused on the wrong things—increasing teachers' pay, establishing

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teacher competency testing, making graduation requirements stricter—instead of trying to "change the general way we go about educating." She concludes that state legislatures need to "set goals and then lay off." Odden (1994) agrees: "A serious results-oriented system would de-emphasize regulations and focus accountability on what students actually learned."

The traditional policies forced on schools, such as those specifying staffing, professional development, curriculum, time, resource use, and budgeting practices, cause schools to ignore student outcomes. Also, excessive curriculum mandates may make it impossible for schools to teach students everything that is mandated.

What Needs to Be Done at the District Level?

At the district level, policy-makers need to refrain from limiting the principal's authority and accountability, limiting the implementation of such governance structures as school-based management, or preventing innovative teaching methods or schedules. District policies that are too strict can prevent teachers, parents, and principals from having a voice in curricula, spending, and personnel selection.

The CED recommends that those who govern schools do the following:

- make it clear to the community that the fundamental goal of schools is learning
- ensure that all policies support learning and achievement and are "well-coordinated and coherent"
- set goals for and monitor student achievement, using state and national standards
- ensure that adequate resources are provided to schools to meet such goals
- delegate responsibility and authority, as well as accountability, for making progresss toward achievement goals
- provide incentives to teachers, students, and administrators for rewarding achievement
- establish methods "for dealing with teachers and administrators who perform poorly"

School boards can help ensure student success by reviewing existing district polices that affect the use of instructional, planning, or inservice time; and investigating potential sources of funding for extended-day programs such as state-supported programs, local foundations, or corporate support (New York State School Boards Association 1991).

"Local school boards should abandon their penchant for micromanagement and concentrate on education policy"; they should avoid looking out for special-interest groups at the "expense of the majority of students," says the CED. Instead, they must focus on student learning and achievement. Clune (1994) advises school boards and other governing bodies to release schools from many existing restrictions, thereby "allowing them to make the multiple adjustments necessary for optimal performance."

What Needs to Be Done at the School Level?

Prager (1993) advises principals to establish goals that focus on student outcomes, beginning with a school mission statement and curricular content goals.

Policies at the school site must be clear to students and teachers. Herbert M. Kliebard and Calvin R. Stone (1992) suggest that excellent schools have a community mandate "to strive for and achieve academic excellence," and this mandate is carried out within the school through what types of courses are offered, the way students and teachers use time, the way academic problems are presented, and the availability of a "network of support systems" that prevents most students from failing.

The National Education Association's Robert Barkley, Jr. says schools should select a specific content area or approach to improving achievement and then decide what the indicators of improvement will be. All people must know what those indicators are and devote their resources to it. He says that "those schools that are effective are those that have reached a consensus in their school community."

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69 BEST COPY AVAILABLE

ERIC DIGEST

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Student Motivation to Learn

by Linda S. Lumsden

Infants and young children appear to be propelled by curiosity, driven by an intense need to explore, interact with, and make sense of their environment. As one author puts it, "Rarely does one hear parents complain that their preschooler is 'unmotivated' " (James Raffini 1993).

Unfortunately, as children grow, their passion for learning frequently seems to shrink. Learning often becomes associated with drudgery instead of delight. A large number of students— more than one in four— leave school before graduating. Many more are physically present in the classroom but largely mentally absent; they fail to invest themselves fully in the experience of learning.

Awareness of how students' attitudes and beliefs about learning develop and what facilitates learning for its own sake can assist educators in reducing student apathy.

What Is Student Motivation?

Student motivation naturally has to do with students' desire to participate in the learning process. But it also concerns the reasons or goals that underlie their involvement or noninvolvement in academic activities. Although students may be equally motivated to perform a task, the sources of their motivation may differ.

A student who is *intrinsically* motivated undertakes an activity "for its own sake, for the enjoyment it provides, the learning it permits, or the feelings of accomplishment it evokes" (Mark Lepper 1988). An *extrinsically* motivated student performs "*in order to* obtain some reward or avoid some punishment external to the activity itself," such as grades, stickers, or teacher approval (Lepper).

The term *motivation to learn* has a slightly different meaning. It is defined by one author as "the meaningfulness, value, and benefits of academic tasks to the learner—regard-less of whether or not they are intrinsically interesting" (Hermine Marshall 1987). Another notes that motivation to learn is characterized by long-term, quality involvement in learning and commitment to the process of learning (Carole Ames 1990).

What Factors Influence the Development of Students' Motivation?

According to Jere Brophy (1987), motivation to learn is a competence acquired "through general experience but stimulated most directly through modeling, communication of expectations, and direct instruction or socialization by significant others (especially parents and teachers)."

Children's home environment shapes the initial constellation of attitudes they develop toward learning. When parents nurture their children's natural curiosity about the world by welcoming their questions, encouraging exploration, and familiarizing them with resources that can enlarge their world, they are giving their children the message that learning is worthwhile and frequently fun and satisfying.

When children are raised in a home that nurtures a sense of self-worth, competence, autonomy, and self-efficacy, they will be more apt to accept the risks inherent in learning. Conversely, when children do not view themselves as basically competent and able, their freedom to engage in academically challenging pursuits and capacity to tolerate and cope with failure are greatly diminished.

Once children start school, they begin forming beliefs about their school-related successes and failures. The sources to which children attribute their successes (commonly effort, ability, luck, or level of task difficulty) and failures (often lack of ability or lack of effort) have important implications for how they approach and cope with learning situations.

The beliefs teachers themselves have about teaching and learning and the nature of the expectations they hold for students also exert a powerful influence (Raffini). As Deborah Stipek (1988) notes, "To a very large degree, students expect to learn if their teachers expect them to learn."

Schoolwide goals, policies, and procedures also interact with classroom climate and practices to affirm or alter students' increasingly complex learning-related attitudes and beliefs.

And developmental changes comprise one more strand of the motivational web. For example, although young children tend to maintain high expectations for success even in the face of repeated failure, older students do not. And although younger children tend to see effort as uniformly positive, older children view it as a "double-edged sword" (Ames). To them, failure following high effort appears to carry more negative implications—

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especially for their self-concept of ability—than failure that results from minimal or no effort.

Are There Advantages to Intrinsic Motivation?

Does it really matter whether students are primarily intrinsically or extrinsically oriented toward learning? A growing body of evidence suggests that it does.

When intrinsically motivated, students tend to employ strategies that demand more effort and that enable them to process information more deeply (Lepper).

J. Condry and J. Chambers (1978) found that when students were confronted with complex intellectual tasks, those with an intrinsic orientation used more logical information-gathering and decision-making strategies than did students who were extrinsically oriented.

Students with an intrinsic orientation also tend to prefer tasks that are moderately challenging, whereas extrinsically oriented students gravitate toward tasks that are low in degree of difficulty. Extrinsically oriented students are inclined to put forth the minimal amount of effort necessary to get the maximal reward (Lepper).

Although every educational activity cannot, and perhaps should not, be intrinsically motivating, these findings suggest that when teachers can capitalize on existing intrinsic motivation, there are several potential benefits.

How Can Motivation To Learn Be Fostered in the School Setting?

Although students' motivational histories accompany them into each new classroom setting, it is essential for teachers to view themselves as "*active socialization agents* capable of stimulating . . . student motivation to learn" (Brophy 1987).

Classroom climate is important. If students experience the classroom as a caring, supportive place where there is a sense of belonging and everyone is valued and respected, they will tend to participate more fully in the process of learning.

Various task dimensions can also foster motivation to learn. Ideally, tasks should be challenging but achievable. Relevance also promotes motivation, as does "contextualizing" learning, that is, helping students to see how skills can be applied in the real world (Lepper). Tasks that involve "a moderate amount of discrepancy or incongruity" are beneficial because they stimulate students' curiosity, an intrinsic motivator (Lepper).

In addition, defining tasks in terms of specific, short-term goals can assist students to associate effort with success (Stipek). Verbally noting the purposes of specific tasks when introducing them to students is also beneficial (Brophy 1986).

Extrinsic rewards, on the other hand, should be used with caution, for they have the potential for decreasing existing intrinsic motivation.

What takes place in the classroom is critical, but "the classroom is not an island" (Martin Maehr and Carol Midgley 1991). Depending on their degree of congruence with classroom goals and practices, schoolwide goals either dilute or enhance classroom efforts. To support motivation to learn, school-level policies and practices should stress "learning, task mastery, and effort" (Maehr and Midgley) rather than relative performance and competition.

What Can Be Done To Help Unmotivated Students?

A first step is for educators to recognize that even when students use strategies that are ultimately self-defeating (such as withholding effort, cheating, procrastination, and so forth), their goal is actually to protect their sense of self-worth (Raffini).

A process called *attribution retraining*, which involves modeling, socialization, and practice exercises, is sometimes used with discouraged students. The goals of attribution retraining are to help students to (1) concentrate on the tasks rather than becoming distracted by fear of failure; (2) respond to frustration by retracing their steps to find mistakes or figuring out alternative ways of approaching a problem instead of giving up; and (3) attribute their failures to insufficient effort, lack of information, or reliance on ineffective strategies rather than to lack of ability (Brophy 1986).

Other potentially useful strategies include the following: portray effort as investment rather than risk, portray skill development as incremental and domain-specific, focus on mastery (Brophy 1986).

Because the potential payoff—having students who value learning for its own sake—is priceless, it is crucial for parents, teachers, and school leaders to devote themselves fully to engendering, maintaining, and rekindling students' motivation to learn.

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Goal 4: Teacher Education and Professional Development

By the year 2000, the Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.

Objectives:

- All teachers will have access to preservice teacher education and continuing professional development activities that will provide such teachers with the knowledge and skills needed to teach to an increasingly diverse student population with a variety of educational, social, and health needs;
- All teachers will have continuing opportunities to acquire additional knowledge and skills needed to teach challenging subject matter and to use emerging new methods, forms of assessment, and technologies;
- States and school districts will create integrated strategies to attract, recruit, prepare, retrain, and support the continued professional development of teachers, administrators, and other educators, so that there is a highly talented work force of professional educators to teach challenging subject matter; and
- Partnerships will be established, whenever possible, among local educational agencies, institutions of higher education, parents, and local labor, business, and professional associations to provide and support programs for the professional development of educators.

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ERIC Digest
National Clearinghouse for ESL Literacy Education

July 1994
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Adult Literacy Practitioners as Researchers

by Cassie Drennon
Virginia Commonwealth University, Richmond, VA

In adult English as a second language (ESL) literacy education and staff development, practitioner inquiry has emerged as a powerful approach toward improving practice. A variety of activities occurs under the umbrella of practitioner inquiry, all of which are grounded in the knowledge and questions held by practitioners (Fingeret and Cockley, 1992). Its characteristics intersect with those of other adult education concepts such as self-directed learning, reflective practice, learner-centeredness, and action research. Lytle, Belzer, and Reumann (1992, p.16) define inquiry as a "social and collaborative process" through which practitioners actually contribute new knowledge within programs and even to the larger adult education field.

This digest examines thinking that underlies practitioner inquiry, explains the phases of an inquiry process, and gives examples of projects. It concludes by identifying concerns with the approach and by suggesting changes that must take place if inquiry is to be viably implemented as a staff development process.

Some Underlying Assumptions

Having traveled a long, circuitous path through the social sciences and K-12 education (see Holly, 1991 for an historical overview), practitioner inquiry has arrived relatively recently on the adult basic education (ABE) and ESL scenes. Proponents of practitioner inquiry in all fields of education tend to share the following views:

- The knowledge transmission model of staff development is insufficient. Although traditional workshops expose participants to new ideas and may renew enthusiasm for teaching, "there is little evidence that this approach works well and more reason to believe that it seldom leads to noticeable improvement or change in professional practice" (Osterman & Kottkamp, 1993, p. 33).
- Staff development should be consistent with what we know from cognitive science (Fingeret & Cockley, 1992): "Knowledge is useful only in so far as it enables persons to make sense of experience. It is gained from the *inside*" (Berlak & Berlak, 1981, cited in Osterman & Kottkamp, 1993, p.37).
- The voices of practitioners have been largely absent from the field of adult literacy education research, yet practitioners are uniquely positioned to provide an inside view of practice in adult literacy education (Lytle, Belzer, & Reumann, 1993).

The Process of Inquiry

A first step for those interested in inquiry might be to link with or establish a network among colleagues who share this vision. Inquiry can occur collaboratively between university and field practitioners or between practitioners and students. The participants in an inquiry project engage in the following activities:

- ***Reflecting*** on practice and identifying a problem, issue, question, or concern;
- ***Gathering*** information through observation; study groups; interviews; study of records, including student work; test scores; lesson plans; case studies; video and audio recordings of classroom life; professional reading; workshops and conferences;
- ***Studying*** the information gathered — analyzing, interpreting or critiquing the information;
- ***Planning*** some action to be taken such as a new approach, strategy, or other intervention;
- ***Implementing*** the action plan;
- ***Monitoring and evaluating*** the changes that occur and judging the quality of the changes; and
- ***Sharing*** what has been learned through informal sessions with colleagues, facilitating workshops, or writing and publishing.

The process described here is action-oriented; that is, it is expected that some changes will be implemented as a result of the reflection and study. However, inquiry can occur without initiating specific changes; rather, it might involve examining present circumstances, exploring ideas, or developing one's own theory. Lytle, Belzer, and Reumann (1993) add that practitioner inquiry is not field-testing the ideas of others, nor is it simply implementing a new strategy that one is already convinced will work. Instead it is a process of generating ideas through reflection and examination of practice, and exploring the implications of those ideas within the practitioner's setting. Cockley (1993) provides a useful resource for practitioners interested in starting an inquiry project.

Practitioner Inquiry in Action

A number of practitioner inquiry communities are developing around the nation. For example, Virginia adopted an inquiry-based staff development system for adult educators in 1993. Throughout the state, groups of practitioners develop inquiry projects with the guidance of locally trained staff development facilitators. The Virginia Adult Educators' Research Network promotes and supports inquiry by organizing study groups; by training practitioners to review literature, conduct interviews, or analyze data; and by publishing practitioner research reports. Hundreds of practitioners in Virginia are exploring a broad range of questions such as "What are the factors that contribute to social bonding among ESL students, and what is the relationship between social bonding and student retention?" and "What happens when I use dialogue journals with inmates in my detention center literacy class?"

In Rhode Island, a group of ESL teachers were dissatisfied with tests available to measure learner progress. They initiated an action research process to address, among other things, ways to help learners see their own gains in literacy (Isserlis, 1990). Their

research efforts resulted in the development of an evaluation grid through which learning and change can be meaningfully gauged.

In Philadelphia, practitioners from a number of adult literacy agencies are participating in the Adult Literacy Practitioner Inquiry Project (ALPIP). As a field/university community of practitioner-researchers, the group's purpose is to simultaneously implement and investigate inquiry-based staff development (Lytle, Belzer, & Reumann, 1993). During biweekly seminars teachers, volunteers, and administrators discuss adult literacy education research as it relates to their own inquiry projects. Some research questions being pursued through the ALPIP project are, "What happens when I facilitate collaborative writing workshops in my classroom?" and "What happens when I use African American literature rather than life skills or job-related reading materials to teach various concepts?"

Challenges to Inquiry

A number of practical concerns have been cited by practitioners implementing inquiry-based approaches. They include:

- **Time** — Although we speak of inquiry as an activity embedded in, rather than added on to practice, many claim that time must be built into practitioners' schedules if they are to engage in reflection, meet with colleagues, study the literature and research of the field, analyze data, and document classroom activity.
- **Trust** — Historically, teaching has been conducted largely in private. If practitioners are to be expected to make public the problematic aspects of their work lives, the culture of the education programs must change to invite greater levels of trust among teachers and between teachers and administrators.
- **Support** — If inquiry is to inspire program-level innovation, support for the process and its outcomes must be clearly articulated and sustained by program administrators. Support includes not only exhibiting genuine interest and providing ongoing encouragement, but also being willing to adopt new ideas.
- **Expectations** — Some practitioners enter into the inquiry process with great expectations for bringing about significant, often long-awaited changes only to find that policies in the larger system constrain particular innovations. (Testing and assessment is one such area.) If practitioner inquiry does not provide an impetus for policy-level changes, it may serve to further discourage some already disenfranchised workers.

The Promise of Practitioner Inquiry

Practitioner inquiry has significant positive benefits that make it worthwhile to take on the challenges it poses. For example, Goswami and Stillman (1987) describe what happens to teachers when they conduct research:

- Their teaching is transformed in important ways: They become theorists—articulating their intentions, testing their assumptions, and connecting theory with practice.
- They increase their use of resources, form networks, and become more active professionally.
- They become rich resources for the profession by providing information not previously available.
- They become critical, responsive readers and users of current research, less apt to accept uncritically others' theories, less vulnerable to fads, and more authoritative in their assessment of curricula, methods, and materials.
- They collaborate with their students to answer questions important to both teachers and students, drawing on community resources in new and unexpected ways.

Practitioner inquiry does not replace traditional staff development methods. However, it requires participants to interact in nontraditional ways with knowledge, resources, colleagues and programs (Drennon, 1993). Fitting inquiry into *existing* staff development structures is problematic. Educational work environments will have to be redesigned to accommodate the kinds of collaboration and collegiality that an inquiry approach demands. Further, the culture of the education workplace must adopt a stance that legitimizes practitioners as both researchers *and* reformers. In short, successful implementation within systems requires commitment on the part of all stakeholders to a set of values and beliefs honoring the vitality of practitioners as knowledge makers within the system.

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ERIC CLEARINGHOUSE ON Counseling And Student Services

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Assessment Skills for School Counselors

William D. Schafer

Perhaps the most controversial area within counselor education is that of assessment. Following Shertzer and Linden (1979), assessment is used here to mean methods or procedures that are employed to obtain information that describes human behavior. The purpose of this digest is to describe school counselors' roles in the area of assessment. Following an historical review of testing in counseling, some findings of a study by Schafer and Mufson (1993) that described roles employers require school counselors to perform are discussed. Conclusions are related to improving quantitative literacy in counselor education.

Historical Perspective

Knowledge needed by counselors to obtain evidence, evaluate its usefulness, and interpret its meaning have long been and continue to be debated. According to Minor and Minor (1981), that debate arose, in part, from the adoption of a humanistic perspective by many counselors and counselor educators, leading to a de-emphasis of models of counseling that entail quantitative assessment. In the 1960's, tests were viewed positively and were used primarily to identify students of outstanding abilities (Zytowski, 1982). However, in the early 1970's, Goldman (1972) suggested, using a well-known metaphor, that the marriage between tests and counseling had failed. At about that time, courts prohibited some established tests for certain purposes and legislatures passed bills to regulate aspects of the use of standardized tests. The validity and practical utility of all testing and appraisal techniques were questioned and negative consequences of "labeling" were emphasized.

Yet assessment remained commonplace in schools. Consider these findings in a survey by Engen, Lamb, and Prediger (1981) and reported by Zytowski (1982): 93% of secondary schools administered at least one test to all students; 76% administered achievement test batteries; 66% administered academic aptitude or intelligent tests; and 16% administered inventories of school or social adjustment or personality tests. By the 1980's, vocational guidance, according to Zytowski (1982), had become a unifying force between counseling and testing.

Zytowski (1982) described several changes that had been made in tests, themselves, and in their uses in counseling. One of these was an erosion of reliance on predictive validity and an accompanying emphasis on convergent and discriminant validity, along with construct validity. He also described the value of an assessment in terms of its ability to guide and motivate a professional toward seeking additional information for decision making. De-formalizing assessment, another change, included increased use of one-item measures, informed self estimates, and card sorts or inventories in which quantified outcomes are less important than is the process the client engages in. Computers had become more instrumental in testing, from primarily scoring and score reporting to actual test administration and providing immediate feedback. Availability and interest in computer testing have clearly increased in the decade since Zytowski's summary appeared.

The counseling community has become more aware of ethical issues in testing. An American Counseling Association (ACA) statement titled Responsibilities of Users of Standardized Tests (RUST), published in 1978 and revised in 1989, urges awareness of differing purposes for testing and reminds us to consider the limitations of tests for any purpose and to evaluate the costs of not testing or using alternative methods of gathering the information needed.

Job Descriptions of School Counselors

In their study of skills needed by school counselors, Schafer and Mufson (1993) reviewed job analyses conducted by five school districts in five different states. They found a natural division of the job role expectations of school counselors into six areas: counseling (individual and group), pupil assessment, consultation, information officer, school program facilitator, and research and evaluation. There are assessment-intensive aspects of each of these.

The counselor's major function in the school is to counsel students individually and whenever practical in small or large groups. The counselor also is responsible for identifying students with special needs. These activities include interpreting test scores and non-test data.

Pupil assessment includes scheduling and preparing for testing, scoring them or sending them out for scoring, recording results, and scheduling for interpretation. Counselors are also responsible for assisting students in evaluating their aptitudes and abilities through interpreting standardized tests. They may be expected to advise teachers who need to understand psychological evaluations and who are interested in improving their content-referenced testing skills.

The third function is that of a consultant. The counselor consults with and advises teachers, parents, and administrators in guidance matters and test score interpretation. In some schools the counselor helps teachers with psychological evaluations and content-referenced testing

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and advises school committees in selection of tests.

The function of information officer includes informing parents, teachers, and staff about counseling services, informing employers and colleges about students according to school policy, and ensuring two-way communication between school and home. Many of these activities involve test interpretation.

The fifth function is administrative, including school administration and counseling administration. Within school administrative, the counselor is responsible for administering tests. Within counseling administrative functions, the counselor is expected to analyze guidance services. Also, the counselor is often asked to participate in decisions about the instructional curriculum.

The sixth function is research and evaluation. The counselor may be responsible for evaluating the school guidance program. The counselor is also expected to read and interpret literature to apply research findings to everyday counselees' situations and to improve his or her skills continuously through evaluation of counseling techniques.

The counselor responsibilities identified by Schafer and Mufson (1993) would likely be found in the large majority of school districts across the nation. Within the area of assessment, roles include test interpreter, test developer, evaluator of programs, consultant, and researcher. Several studies reviewed by Schafer and Mufson (1993) were supportive of these roles.

Assessment Skills Required by School Counselor Roles

The roles that have been identified imply that counselors should have certain skills related to assessment. Schafer and Mufson (1993) organized these into three areas: doing pupil assessment, doing program evaluation, and using basic research.

Doing pupil assessment includes: types of assessment; assessment systems and programs; test administration and scoring; test reporting and interpretation; test evaluation and selection; design, analysis, and improvement in instrument development; formal and informal methods of assessment; methods for using assessment in counseling; administrative uses of assessment; computer-based applications; and ethics of using assessments.

Doing program evaluation includes: needs assessment; formative and summative evaluation; sources of evaluation research invalidity (instrumental, internal, and external); choosing evaluation designs; choices of and computational methods for descriptive and inferential statistics; writing evaluation proposals and reports; disseminating information; and research ethics.

Using basic research includes: locating and obtaining relevant research reports; reading and summarizing research reports; evaluating validity of instruments and research designs; and purpose and assumptions of common inferential statistical procedures.

Conclusions

Schafer and Mufson (1993) generated aspects of school counselors' roles that are related to assessment. They also generated a list of assessment-related content areas in the CACREP standards that pertain to school counselor education programs. In order to study the fit of these two lists, for each job-definition role, they reviewed those CACREP content areas that seemed supportive of it. They concluded that these CACREP skills, conscientiously presented in a counselor education program, would in most areas constitute an adequate preparation for a beginning-level school counselor.

Focusing on the role of test interpreter, however, Goldman (1982) found little research evidence that tests as they have been used by counselors have made much of a difference to the people they serve. He felt the reasons are that counselors have not been prepared adequately to understand psychometric evidence, and that the predictive validity of test information is inadequate to support individual interpretation. He suggested that schools and other institutions should reduce the use of standardized tests and replace them with less formal and less quantitative methods. However, the implications for assessment in counselor education programs of such a shift are unclear. It seems unlikely that formal assessment methods will disappear from schools.

Perhaps, as Daniels and Altekruse (1982) observed, lack of integration of assessment and counseling rests on counselor educators' failure to provide integrating guidelines in both assessment and counseling coursework. Among other recommendations, they concluded that counselor educators should become more responsible for teaching assessment content as well as for demonstrating its interrelations with counseling in their other courses. Shertzer and Linden (1982) have suggested that a more systematic approach to counselor education at both the preservice and the inservice levels can produce professionals who are more sophisticated in the practice of assessment and appraisal. The same seems true in the areas of program evaluation and basic research.

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Clearinghouse on Information & Technology

ERIC DIGEST

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Computer Skills for Information Problem-Solving: Learning and Teaching Technology in Context

by Michael B. Eisenberg and Doug Johnson

There seems to be clear and widespread agreement among the public and educators that students need to be proficient computer users —students need to be "computer literate." However, while districts are spending a great deal of money on technology, there seems to be only a vague notion of what computer literacy really means.

- Can the student who operates a computer well enough to play *Doom* be considered computer literate?
- Will a student who has used computers in school only for running tutorials or an integrated learning system have the skills necessary to survive in our society?
- Will the ability to do basic word processing be sufficient for students entering the workplace or post-secondary education?

Clearly not. In too many schools, most teachers and students still use computers only as the equivalent of expensive flash cards or electronic worksheets. The productivity side of computer use in the general content area curriculum is neglected or grossly underdeveloped (Moursund, 1995).

There are, however, some encouraging signs concerning computers and technology in education. For example, it is becoming increasingly popular for educational technologists to advocate integrating computers into the content areas. Teachers and administrators are recognizing that computer skills should not be taught in isolation, and that separate "computer classes" do not really help students learn to apply computer skills in meaningful ways. This is an important shift in approach and emphasis. And it's a shift with which library media specialists have a great deal of familiarity.

Library media specialists know that moving from isolated skills instruction to an integrated approach is an important step that takes a great deal of planning and effort. Over the past 20 years, library media professionals have worked hard to move from teaching isolated "library skills" to teaching integrated information skills. Effective integration of information skills has two requirements:

(1) the skills must directly relate to the content area curriculum and to classroom assignments, and
(2) the skills themselves need to be tied together in a logical and systematic information process model.

Schools seeking to move from isolated computer skills instruction will also need to focus on both of these requirements. Successful integrated information skills programs are designed around collaborative projects jointly planned and taught by teachers and library media professionals. Computer skills instruction can follow the same approach. Library media specialists, computer teachers, and classroom teachers need to work together to develop units and lessons that will include both computer skills, general information skills, and content-area curriculum outcomes.

A meaningful, unified computer literacy curriculum must be more than "laundry lists" of isolated skills, such as:

- knowing the parts of the computer
- writing drafts and final products with a word processor
- searching for information using a CD-ROM database.

While these specific skills are certainly important for students to learn, the "laundry list" approach does not provide an adequate model for students to transfer and apply skills from situation to situation. These curricula address the "how" of computer use, but rarely the "when" or "why." Students may learn isolated skills and tools, but they will still lack an understanding of how those various skills fit together to solve problems and complete tasks. Students need to be able to use computers flexibly, creatively and purposefully. All learners should be able to recognize what they need to accomplish, determine whether a computer will help them to do so, and then be able to use the computer as part of the process of accomplishing their task. Individual computer skills take on a new meaning when they are integrated within this type of information problem-solving process, and students develop true "computer literacy" because they have genuinely applied various computer skills as part of the learning process.

The curriculum outlined on pages 2-3, "Computer Skills for Information Problem-Solving," demonstrates how computer literacy skills can fit within an information literacy skills context (American Association of School Librarians, 1995). The baseline information literacy context is the Big Six Skills process (see sidebar and Eisenberg & Berkowitz cites). The various computer skills are adapted from curricula developed by the state of Minnesota (Minnesota Department of Education, 1989) and the Mankato Area Public Schools (Mankato Schools Information Literacy Curriculum Guideline). These basic computer skills are those which all students might reasonably be expected to authentically demonstrate before graduation. Since Internet-related skills are increasingly important for information problem-solving, they are included in this curriculum, and are noted by an asterisk.

Computer Skills for Information Problem-Solving: A Curriculum Based on the Big Six Skills Approach †

copyright Michael B. Eisenberg, Doug Johnson & Robert E. Berkowitz

1. Task Definition:

The first step in the information problem-solving process is to recognize that an information need exists, to define the problem, and to identify the types and amount of information needed. In terms of technology, students will be able to:

A. Use e-mail, and online discussion groups (e.g., listservs, newsgroups) on the Internet to communicate with teachers regarding assignments, tasks, and information-problems.*
B. Use e-mail, and online discussion groups (e.g.,listservs, newsgroups) on the Internet to generate topics and problems and to facilitate cooperative activities among groups of students locally and globally.*
C. Use desktop conferencing, e-mail, and groupware software on local area networks to communicate with teachers regarding assignments, tasks, and information problems.
D. Use desktop conferencing, e-mail, and groupware software on local area networks to generate topics and problems and to facilitate cooperative activities among groups of students locally.
E. Use computer brainstorming or idea generating software to define or refine the information problem. This includes developing a research question or perspective on a topic.

2. Information Seeking Strategies:

Once the information problem has been formulated, the student must consider all possible information sources and develop a plan for searching. Students will be able to:

A. Assess the value of various types of electronic resources for data gathering, including databases, CD-ROM resources, commercial and Internet online resources, electronic reference works, community and government information electronic resources.*
B. Identify and apply specific criteria for evaluating computerized electronic resources.
C. Assess the value of e-mail, and online discussion groups (e.g., listservs, newsgroups) on the Internet as part of a search of the current literature or in relation to the information task.
D. Use a computer to generate modifiable flow charts, Gantt charts, time lines, organizational charts, project plans and calendars which will help the student plan and organize complex or group information problem-solving tasks.

3. Location and Access:

After students determine their priorities for information seeking, they must locate information from a variety of resources and access specific information found within individual resources. Students will be able to:

A. Locate and use appropriate computer resources and technologies available within the school library media center, including those on the library media center's local area network, (e.g., online catalogs, periodical indexes, full-text sources, multimedia computer stations, CD-ROM stations, online terminals, scanners, digital cameras).
B. Locate and use appropriate computer resources and technologies available throughout the school including those available through local area networks (e.g., full-text resources, CD-ROMs, productivity software, scanners, digital cameras).
C. Locate and use appropriate computer resources and technologies available beyond the school through the Internet (e.g., newsgroups, listservs, WWW sites via Netscape, Lynx or another browser, gopher, ftp sites, online public access library catalogs, commercial databases and online services, other community, academic, and government resources).*
D. Know the roles and computer expertise of the people working in the school library media center and elsewhere who might provide information or assistance.
E. Use electronic reference materials (e.g., electronic encyclopedias, dictionaries, biographical reference sources, atlases, geographic databanks, thesauri, almanacs, fact books) available through local area networks, stand-alone workstations, commercial online vendors, or the Internet.
F. Use the Internet or commercial computer networks to contact experts and help and referral services.*
G. Conduct self initiated electronic surveys conducted through e-mail, listservs or newsgroups.*
H. Use organizational systems and tools specific to electronic information sources that assist in finding specific and general information (e.g., indexes, tables of contents, user's instructions and manuals, legends, boldface and italics, graphic clues and icons, cross-references, Boolean logic strategies, time lines, hypertext links, knowledge trees, URLs etc.) including the use of:
    1. search tools and commands for stand-alone, CD-ROM, and online databases and services (e.g., DIALOG commands, America Online, UMI, Mead);
    2. search tools and commands for searching the Internet (e.g., Yahoo, Lycos, WebCrawler, Veronica, Archie).*

4. Use of Information:

After finding potentially useful resources, students must engage (read, view, listen) the information to determine its relevance and then extract the relevant information. Students will be able to:

A. Connect and operate the computer technology needed to access information, and read the guides and manuals associated with such tasks.
B. View, download, decompress and open documents and programs from Internet sites and archives.*
C. Cut and paste information from an electronic source into a personal document complete with proper citation.
D. Take notes and outline with a word processor or similar productivity program.
E. Record electronic sources of information and locations of those sources to properly cite and credit in footnotes, endnotes, and bibliographies.
F. Use electronic spreadsheets, databases, and statistical software to process and analyze statistical data.
G. Analyze and filter electronic information in relation to the task, rejecting non-relevant information.

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5. Synthesis:

Students must organize and communicate the results of the information problem-solving effort. Students will be able to:

A. Classify and group information using a word processor, database or spreadsheet.
B. Use word processing and desktop publishing software to create printed documents, applying keyboard skills equivalent to at least twice the rate of handwriting speed.
C. Create and use computer-generated graphics and art in various print and electronic presentations.
D. Use electronic spreadsheet software to create original spreadsheets.
E. Generate charts, tables and graphs using electronic spreadsheets and other graphing programs.
F. Use database/file management software to create original databases.
G. Use presentation software (e.g., *PowerPoint, HyperStudio, Aldus Persuasion*) to create electronic slide shows and to generate overheads and slides.
H. Create hypermedia and multimedia productions with digital video and audio.
I. Create World Wide Web pages and sites using hypertext markup language (HTML).*
J. Use e-mail, ftp, and other telecommunications capabilities to share information, products, and files.*
K. Use specialized computer applications as appropriate for specific tasks, e.g., music composition software, computer assisted drawing and drafting programs, mathematics modeling software.
L. Properly cite and credit electronic sources of information in footnotes, endnotes, and bibliographies.

6. Evaluation:

Evaluation focuses on how well the final product meets the original task (effectiveness) and the process of how well students carried out the information problem-solving process (efficiency). Students may evaluate their own work and process or be evaluated by others (i.e. classmates, teachers, library media staff, parents). Students will be able to:

A. Evaluate electronic presentations in terms of both the content and format.
B. Use spell and grammar checking capabilities of word processing and other software to edit and revise their work.
C. Apply legal principles and ethical conduct related to information technology related to copyright and plagiarism.
D. Understand and abide by telecomputing etiquette when using e-mail, newsgroups, listservs and other Internet functions.*
E. Understand and abide by acceptable use policies in relation to use of the Internet and other electronic technologies.
F. Use e-mail, and online discussion groups (e.g., listservs, newsgroups) on local area networks and the Internet to communicate with teachers and others regarding their performance on assignments, tasks, and information-problems.*
G. Use desktop conferencing, e-mail, and groupware software on local area networks to communicate with teachers and others regarding student performance on assignments, tasks, and information problems.
H. Thoughtfully reflect on the use of electronic resources and tools throughout the process.

The Big Six Skills Approach to Information Problem Solving

copyright Eisenberg and Berkowitz, 1988.

The Big Six is an information literacy curriculum, an information problem-solving process, and a set of skills which provide a strategy for effectively and efficiently meeting information needs. The Big Six Skills approach can be used whenever students are in a situation, academic or personal, which requires information to solve a problem, make a decision or complete a task. This model is transferable to school, personal, and work applications, as well as all content areas and the full range of grade levels. When taught collaboratively with content area teachers in concert with content-area objectives, it serves to ensure that students are information literate.

The Big Six:

1. Task Definition
- 1.1 Define the task (the information problem)
- 1.2 Identify information needed in order to complete the task (to solve the information problem)

2. Information Seeking Strategies
- 2.1 Brainstorm all possible sources
- 2.2 Select the best sources

3. Location and Access
- 3.1 Locate sources
- 3.2 Find information within the source

4. Use of Information
- 4.1 Engage in the source (read, hear, view, touch)
- 4.2 Extract relevant information

5. Synthesis
- 5.1 Organize information from multiple sources
- 5.2 Present the information

6. Evaluation
- 6.1 Judge the process (efficiency)
- 6.2 Judge the product (effectiveness)

Addendum:

Included here are skills and knowledge related to technology that are not part of the computer and information technology curriculum. These items should be learned in context, i.e., as students are working through various assignments and information problems using technology. Students will be able to:

A. Know and use basic computer terminology.
B. Operate various pieces of hardware and software—particularly operating systems—and be able to handle basic maintenance.
C. Understand the basics of computer programming. Specific courses in computer programming should be part of the school's curricular offerings.
D. Understand and articulate the relationship and impact of information technology on careers, society, culture, and their own lives.

Note: Permission is granted for educational use or reprint of all or parts of this curriculum as long as the authors are properly and prominently credited.

* Items are specific to Internet use.

† This curriculum guide is an excerpt from *Computer Skills for Information Problem-Solving: Learning and Teaching Technology in Context*, ERIC Digest (1996, March), prepared by Michael B. Eisenberg and Doug Johnson for the ERIC Clearinghouse on Information & Technology, Syracuse, NY. (ED number pending, IR 055 809)

(continued from page 1) . . .

Some computer literacy "skills" competencies which do not seem to fit into this information processing model, and which may or may not be important to have stated include:

- knowing the basic operation, terminology, and maintenance of equipment
- knowing how to use computer-assisted instructional programs
- having knowledge of the impact of technology on careers, society, and culture
- computer programming
- specialized computer applications like music composition software, computer assisted drawing and drafting programs, mathematics modeling software, etc.

Listing computer skills is only a first step in assuring all our children become proficient information and technology users. A teacher supported scope and sequence of skills, well designed projects, and effective assessments are also critical. Many library media specialists will need to hone their own technology skills in order to remain effective information skills teachers. But such a curriculum holds tremendous opportunities for library media specialists to become vital, indispensable staff members, and for all children to master the skills they will need to thrive in an information rich future.

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E530

CONNECTING PERFORMANCE ASSESSMENT TO INSTRUCTION: A COMPARISON OF BEHAVIORAL ASSESSMENT, MASTERY LEARNING, CURRICULUM-BASED MEASUREMENT, AND PERFORMANCE ASSESSMENT

Lynn S. Fuchs

A major impetus for the performance assessment movement has been the need to reconnect large-scale and classroom assessment to learning so that assessment affects learning positively, enhancing instruction.

In What Ways Can Assessment Enhance Instruction?

When teachers are better informed of the learning progress and difficulties of their students, they can make better decisions about what a student needs to learn next and how to teach that material in a manner that will maximize the student's learning. Teachers make three types of decisions using assessment results:

1. Instructional placement decisions—what the student knows and where he or she should be in the instructional sequence—i.e., what to teach next.

2. Formative evaluation decisions—information to monitor a student's learning while an instructional program is underway—how quickly progress is being made, whether the instructional program is effective, and whether a change in instructional program is needed to promote the student's learning.

3. Diagnostic decisions—which specific difficulties account for the student's inadequate progress so the teacher can remediate learning progress and design more effective instructional plans.

What Criteria Should Assessments Meet If They Are to Inform Instructional Decisions?

These assessments should meet seven criteria:

1. Measure important learning outcomes.
2. Address all three purposes of assessment.
3. Provide clear descriptions of student performance that can be linked to instructional actions.
4. Be compatible with a variety of instructional models.
5. Be easily administered, scored, and interpreted by teachers.
6. Communicate the goals of learning to teachers and students.
7. Generate accurate, meaningful information (i.e., be reliable and valid).

How Does Performance Assessment Compare to Other Methods of Linking Assessment to Instruction?

Other methods of linking assessment to instruction include behavioral assessment, mastery learning, and curriculum-based measurement.

Behavioral assessment. Behavioral assessment relies on direct observation and recording of target behaviors, using repeated observations in the setting where the behavior occurs. Environmental factors (i.e., the situations in which the behaviors occur) and their effect on the behaviors are examined.

For example, if a teacher wanted to instruct a student in grocery shopping, she would first analyze the tasks associated with grocery shopping, put them in order, and design behavioral objectives that measure each task. Tasks might include creating a shopping list, finding the items in the store, and finding the price of each item. The teacher would then collect data on each task to identify those in which the student needed instruction. The teacher would begin instruction at the point in the task sequence where the student was unable to correctly complete the task. Once the student could correctly complete a task, the teacher would move on to the next step, moving through the sequence until all of the tasks were mastered.

Behavioral assessment meets some but not all of the criteria for assessments listed above. It can inform the teacher about the student's placement in the instructional sequence and can help the teacher reach formative evaluation and diagnostic decisions. It communicates clearly what the essential learning content is, and it is feasible to administer, score, and interpret. In addition, its repeated measurements support the reliability of assessments. However, behavioral assessment tends to focus on discrete tasks that do not necessarily add up to important outcomes. It is limited to observable behaviors, and its small units of instruction can be difficult for students to piece together and apply to real-world outcomes. Additionally, the assessment system dictates a behavioral approach to instruction, which can limit the teacher's instructional options.

Mastery learning. In mastery learning, a curriculum is broken down into a set of subskills, which are then ordered in a hierarchy of instructional objectives. For each step in the instructional hierarchy, a criterion-referenced test is designed, and a performance criterion indicating mastery of the subskill is specified. The teacher starts at the lowest step in the hierarchy, pretests, teaches the objective, and posttests on the material. If the student does not demonstrate mastery, the teacher uses corrective strategies until mastery is achieved. The teacher then advances the student to the next, more difficult step in the hierarchy.

Like behavioral assessment, mastery learning provides information for instructional placement, formative evaluation, and diagnostic decisions. It communicates clearly to teachers and students about what is important to teach and learn. However, mastery learning suffers from the same limitation as behavioral assessment: It focuses on discrete behaviors in both assessment and instruction. Because little emphasis has been placed on its reliability or validity, users do not know what exactly is being assessed, how to interpret the resulting information, and how to use the measures effectively. Moreover, the measurement system dictates a specific approach to instruction, leaving the teacher few instructional choices. The focus of measurement changes each time a student achieves mastery of a step in the curriculum, and the steps may be of unequal difficulty, so progress cannot be judged over time. Finally, because different students need to be measured simultaneously on different steps of the curriculum, mastery learning systems can become unmanageable for teachers.

Curriculum-based measurement (CBM). The focus of CBM is long-term. The teacher establishes a broad outcome for the student such as competently performing mathematics at the third-grade level at the end of the school year. Then the teacher uses CBM methods to measure student proficiency: He or she creates a pool of equivalent assessments, each of which samples the key problem types from the third grade curriculum. Each week, the student completes one or two assessments. Because each assessment is of equal difficulty and incorporates all of the important problem types to be learned over the year, the CBM data base produces a total score graphed over time to show progress over the year. Analysis of the student's performance

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on separate skills embedded in the assessment can also be conducted for diagnostic problem-solving to improve the instructional program.

CBM satisfies six of the criteria for assessments. It addresses the three purposes for assessment, and it incorporates standardized measurement techniques, providing reliability and validity. It offers detailed information on a student's performance on specific skills and can be used to determine how to improve an instructional program. Its measurement framework is not tied to any particular model of instruction, so a broad range of instructional options can be used. A teacher can use widely varying methods with the same child to see which method is most beneficial. Students know how they are evaluated and can set personal learning goals. In addition, the assessment demands are manageable in classroom settings, and to make them even more easily manageable, computer programs have been developed to administer assessments and manage the data.

However, CBM has two drawbacks with respect to the criteria for assessments. The system requires longer time periods to reveal growth, and the connection between assessment results and instructional decisions is not as clear as with behavioral assessment or mastery learning. Controversy also exists about the importance of the learning outcomes associated with CBM. That is, it relies on pencil and paper tasks in math and spelling and one-dimensional assessments in reading, while current discussions about outcomes stress the utility of multidimensional measures that can cut across curriculum areas.

Performance assessment. Three key features of performance assessment are: (1) students construct, rather than select, responses; (2) assessment formats allow teachers to observe student behavior on tasks reflecting real-world requirements; and (3) scoring reveals patterns in students' learning and thinking.

An example of a performance assessment task is provided below:

A group of five families on your block is going to have a garage sale in which clothes, toys, and books will be sold. Your family has 12 items to sell and will need 18 square feet to display these items; the Hamletts have 13 items and need 20 square feet; the Phillips, 7 items and 10 square feet; the Garcias, 15 items and 15 square feet; the Nguyens, 10 items and 30 square feet. Rental tables measure 6 feet by 2.5 feet and cost $6.00 a day. The garage where the sale will be held is 20 feet by 30 feet. Newspaper advertising costs $11 for the first 10 words and $1.50 for each additional word.

1. *How many tables will you need? Explain how you got this number.*
2. *Draw a diagram showing how the tables can be arranged in the garage to allow the customers to move about with at least 4 feet between tables.*
3. *Write an ad for your sale that includes enough information.*
4. *How much money do you have to earn from your sale for the families to break even?*

The students are aware of the scoring system and the criteria used to determine the scores. Their responses will be classified as exemplary, competent, minimal, inadequate, or no attempt based on a rubric that specifies the characteristics of responses in each of these categories.

This problem offers one version of what a teacher's use of performance assessment might look like. In practice, many varieties of performance assessment are used. This problem measures massed mathematical concepts that include addition, multiplication, decimals, data analysis, perimeters, area, spatial sense, graphic representation, money, and communication about mathematics. Students take about 50 minutes for the assessment, and it can be completed individually or in small groups. The problem is anchored in a real-life, age-appropriate situation and represents real applications of mathematics.

How Well Does Performance Assessment Satisfy the Seven Criteria for Assessment?

Today, performance assessment is relatively new, undeveloped, and yet to be studied systematically. Many practitioners are experimenting with its use and contributing to its development and refinement. Yet they are often in the undesirable position of interpreting vague design features and operationalizing those features into specific assessments on their own. These assessments take a variety of forms, some of which are closer than others in approximating the conceptual and theoretical underpinnings of performance assessment.

1. *Measure important learning outcomes.* The extent to which performance assessment measures important student outcomes depends on the specific assessment problem or task. Performance assessment tasks should reflect important, real-world performances that are tied to desired student outcomes that are relevant to the workplace and everyday life. They should connect meaningfully with specific instructional methods that can be realistically managed in school settings.

2. *Address all three purposes of assessment.* It is unclear how performance assessment can be used to formulate instructional placement or formative evaluation decisions. Ideally, alternate forms of the problem could include the same concepts administered over time in order to yield information about individual students' progress. Although performance assessment offers the promise of addressing all three assessment purposes, specific methods for doing so have yet to be developed.

3. *Provide clear descriptions of student performance that can be linked to instructional actions.* When performance assessment tasks address a variety of concepts in age-appropriate, real-world situations, teachers can form a picture of student performance across skills and identify the student's problem-solving strategies. However, this depends on the teacher's skill in identifying student competencies, gleaning information about students' strategic behavior, and relating these observations to specific instructional techniques. Consultation methods or computerized strategies for generating profiles of student competence are needed.

4. *Be compatible with a variety of instructional models.* Theoretically, performance assessment could be used with a variety of instructional approaches. Teachers should experiment with a variety of instructional methods as they implement performance assessment, especially with students who have serious learning problems.

5. *Be easily administered, scored, and interpreted by teachers.* Performance assessment can require large amounts of teacher time to design and administer assessments and to scrutinize student performances. It is easy to see how this type of assessment could generate so many different plans for intervention strategies for different students that teachers in a classroom situation with 20 or 30 students would be unable to manage. Performance assessment developers need to solve the problem of how to implement plans based on performance assessments within the constraints of classroom life.

6. *Communicate the goals of learning to teachers and students.* When it is clearly apparent that an assessment is aligned with instructional goals, teachers should be able to use that assessment to direct their instruction, and students should be able to use it to establish personal learning goals. This depends, however, on the extent to which the scoring rubric used is clear, concrete, and visible.

7. *Generate accurate, meaningful information (i.e., be reliable and valid).* Performance assessment represents a vision that can shape the future direction of classroom-based assessment, but it requires much additional scrutiny and development before it can fulfill its promise.

Derived from Fuchs, L. (1994). *Connecting Performance Assessment to Instruction.* Reston, VA: The Council for Exceptional Children. (Product #P5058)

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82 BEST COPY AVAILABLE

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Countering Prejudice Against American Indians and Alaska Natives Through Antibias Curriculum and Instruction

by Deirdre A. Almeida

Throughout the 1990s, forward-looking educators have continued to call for major changes in U.S. schools, including changes that celebrate—rather than denigrate—the diversity in American culture and language usage (Macedo, 1994). One result of this important reform movement has been the development of an *antibias perspective* in curriculum and instruction. Teaching from an antibias perspective means introducing students to a working concept of diversity that challenges social stereotypes and discrimination. Antibias teaching goes beyond traditional multicultural education and *gives students tools for identifying and counteracting* the hurtful impact of bias on themselves and their peers (LeeKeenan, 1993).

This Digest describes current inadequacies in teaching about Native Americans—even when teachers are making an effort to portray American Indians and Alaska Natives respectfully—and suggests ways to avoid common pitfalls. The Digest provides guidelines for detecting anti-Indian bias in the curriculum and offers a brief list of Native American-controlled publications and resources.

Current Teaching About Native Americans

Three obstacles to providing better instruction about American Indians and Alaska Natives are (1) lack of training provided by teacher-training programs, (2) ongoing racist portrayals of Native Americans in the larger society, and (3) difficulties in locating sources of trustworthy materials.

Non-Native educators, influenced by biased portrayals of American Indians in their own schooling and in the media, often view Native Americans as exotic, quaint, and even mythological. Unfortunately, too many teacher-training programs still do not include extensive study and research on Native Americans. At best, educators may have heard a lecture on developing instructional activities about Native Americans as part of a multicultural education workshop, or they may have briefly researched Native Americans as part of an anthropology course. Rarely is there the opportunity in college for a prospective educator to take a course focused on Native Americans taught by a Native American faculty member. The result is limited and often inaccurate knowledge on the part of teachers concerning American Indians and Alaska Natives. This compromised experience then gets handed down to the next generation.

Typically, when teaching about Native Americans, teachers favor two approaches in developing their lessons. The first is the "dead-and-buried culture approach," which portrays Native Americans as being extinct. Lessons tend to present information in the past tense, "Indians lived in tipis, they grew corn and hunted buffalo, they were very athletic, they lived in harmony with the land," and so forth. Second is the "tourist approach," where students "visit" a different culture. Just like a vacationing tourist, they experience only the unusual or exotic components of Native American cultures. Neither approach provides non-Native students the tools they need to comfortably interact with American Indians and Alaska Natives. Instead, they teach simplistic generalizations about other peoples and lead to stereotyping, rather than to understanding (Derman-Sparks, 1993-94).

Native American stereotypes are prevalent throughout mainstream society and are a key component of contemporary racism. Teachers and students are exposed to this racist stereotyping, often without being aware it is happening. Television and movies still tend to portray Native Americans only as historic figures, perpetuating false—often romanticized—images among non-Natives. Sporting events, with professional teams' Indian mascots, also contribute to the trivializing of Native American cultures.

Most people are not inclined to critically analyze these images of American Indians and Alaska Natives. Many young people accept as truth what they see on movie and television screens. Protecting children from racism is every bit as important as protecting them from dangerous chemicals; poison is poison. Once instilled, oppressive cultural attitudes are at least as hard to remedy as are imbibed cleaning fluids (Dorris, 1992). An antibias curriculum can serve as an antidote, but unlearning Native American stereotypes is a lifelong struggle. Good teachers help students learn by sharing the mistakes of the past as well as by sharing contemporary understandings (Pewewardy, 1993).

Still other obstacles remain. Finding resources about Native Americans that are not superficial and stereotypical remains a challenge to teachers in developing antibias lessons. Even the most culturally sensitive teacher often lacks the skills needed to evaluate curriculum materials and does not know where to seek out better ones.

Developing Antibias Native American Curriculum

An individual's approach to learning and to demonstrating (or teaching) what he or she has learned is influenced by the values, norms, and socialization practices of the culture in which that individual has been enculturated (Swisher & Deyhle, 1992). It is important, therefore, that before teachers begin developing an antibias curriculum they examine their own underlying beliefs and ideologies about Native Americans. This usually involves an initial period of critically questioning and analyzing most of what they have learned about American Indians and Alaska Natives. Reading books and articles written by Native scholars will help. Some excellent resources for beginning this process are listed at the end of this Digest.

Once a teacher understands the influences that have helped shape his or her personal views of Native Americans, that teacher will be better prepared to assess the knowledge and attitudes of his or her students. Thanks to television, picture books, and movies, children—especially younger ones—continue to be exposed to old, negative stereotypes of Native Americans. Once aware of the images their students bring with them to the classroom, teachers

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can use this knowledge to develop a curriculum that challenges students to develop critical thinking skills in examining these cultural images. There are dangers lurking in any process that leads to the breakdown of stereotypes. Teachers must guard against leading students from viewing Native Americans as primitives or savages to regarding them as only noble and good. Romanticizing Native Americans succeeds only in replacing one unrealistic portrayal with another.

Teachers can integrate antibias learning into the entire curriculum at any education level. One practical technique, called *webbing*, helps teachers and students identify an array of possible topics for interdisciplinary learning (Derman-Sparks, 1993-94). Webbing involves several steps:

- First, determine the center of the web, the theme to be studied. An example is the agricultural techniques of American Indians of New England.
- Step two involves brainstorming possible issues that stem from the theme at the center of the web. Examples could include indigenous dietary practices, the role of Native women in New England and food production, or the connection between the cultivation of land and Native American resistance to colonization.
- In the third step, determine the level of awareness held by each member of the class pertaining to Native Americans and the specific antibias issues of study. Depending on the grade level, develop an exercise or set of questions that requires students to draw from their individual knowledge (including stereotypes) of American Indians in the region. Stories or role-playing can be used to stimulate discussions.
- In the final step, students help brainstorm a list of possible activities that the students and teacher can pursue to fill in the gaps in student knowledge. Incorporating the theme into all subject areas strengthens the antibias aspects of the curriculum. In language arts, students could read a legend about how corn came to a local Indian nation. In science, students could research the varieties of corn grown in the past and today by Native peoples. Mathematics students could calculate the yield produced by indigenous agricultural techniques.

Detecting Anti-Indian Bias in Instructional Materials

Once a teacher begins developing skills in detecting the cultural influences that guide perceptions and beliefs, anti-Indian bias becomes increasingly obvious, especially in instructional materials. There are several types of materials to avoid using with students:

- **Materials that make sweeping generalizations about Native Americans.** Such materials fail to portray the tremendous diversity among Native American cultures today and historically. More trustworthy materials identify American Indians and Alaska Natives by their specific nations, tribes, or villages.
- **Materials that present only the colonizers' perspectives.** These materials lack any Native American perspective or voice. Such a lack of perspective is often referred to as Eurocentrism. U.S. history textbooks that begin with the European discovery of the Americas reveal a Eurocentric bias that disregards the histories of the Indigenous nations of this hemisphere. Another example is world history courses that cover ancient cultures in Asia, Europe, and Africa, but exclude any mention of North and South America. This creates the impression that there was nothing in the Americas worth mentioning until Europeans came.
- **Books and videos that exploit Native American cultural and spiritual traditions for profit.** Some "New Age" spiritual guides commit this error, which many Native Americans find offensive.
- **Lack of respect for Native American intellectual property rights and Indigenous knowledge.** Similar to the New Age publications, this category includes the publication of private or sacred information—such as knowledge about pharmaceuticals or agricultural crop varieties—without the consent of the Native American nation or community that developed them.

It is not always easy to detect these flaws when reviewing materials for classroom use. One way of minimizing anti-Indian bias in curriculum materials is to use Native American-controlled publishers and media distributors whenever possible in exploring American Indian and Alaska Native themes with students. A list of some resources and distributors you may want to consider appears at the end of this Digest.

Conclusion

It is important for teachers to raise their awareness of the influences affecting themselves, their students, and the school culture in general when it comes to beliefs and attitudes regarding American Indians and Alaska Natives. Hopefully, as they become more knowledgeable about bias in the curriculum, teachers will be willing to share their knowledge, instructional approaches, and materials with others, in this way becoming a resource for others to learn about antibias approaches to curriculum and instruction. The development of an antibias perspective in curriculum and instruction about American Indians and Alaska Natives is now and will continue to be an ongoing process, but one that holds great promise. By weaving the concept of shared human experience and cultural diversity into all aspects of the curriculum, the current generation of U.S. teachers and students could be the last one to struggle against the racism and prejudice that have plagued Native Americans and weakened the fabric of American culture.

Suggested Resources

Journals

Akwesasne Notes. Kahniakehaka Nation Territory, P.O. Box 196, Rooseveltown, NY 13683-0196.

Native Americas. Akwe:kon Press, 300 Caldwell Hall, Cornell University, Ithaca, NY 14853.

Native Peoples Magazine. 5333 N. 7th Street, Suite C224, Phoenix, AZ 85014-9943.

Video

Native American Public Telecommunications, P.O. Box 83111, Lincoln, NE 68501-3111.

Books

Champagne, D. (Ed.) (1994). *Native America: Portrait of the Peoples.* Detroit: Visible Ink Press.

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National Clearinghouse for ESL Literacy Education

Creating a Professional Workforce in Adult ESL Literacy

by JoAnn Crandall
University of Maryland, Baltimore County

The challenges faced by many adult English as a Second Language (ESL) literacy teachers are great enough to work against the advancement of the profession itself. Classes are often large and made up of students of varying ability levels. Instruction may include basic literacy, family literacy, workplace literacy, or any number of specialized areas within the field. Funding is intermittent, limiting continuity of employment and opportunities for professional growth. At the same time, the demand for ESL instruction for adults is increasing (U.S. Department of Education, 1991). Although it is clear that professional, well-prepared teachers are needed now more than ever, several factors mitigate against the development of such a workforce. The majority of adult ESL literacy instructors work part time, without contracts or benefits. Often they are volunteers. Many receive only the most limited professional preparation and then leave the field after a short period of time (Crandall, 1993).

This digest explores the issue of professionalism in adult ESL literacy. It describes the current conditions of the ESL workforce, it discusses the role credentialing and certification might play in the professionalization process, and it highlights several professional development models the field might consider to help create a professional workforce.

Professional Development: Limited Opportunities

Most adult ESL literacy instructors work part time. Many work in several programs at once, each requiring different knowledge and skills. Those who are full time are likely to function as both program administrators and teachers. Thus, it is not surprising that the turnover among ESL practitioners is great. One survey of adult literacy practitioners in New York reported that a majority had been in the field for three years or fewer (Metis Associates, 1986). These educators reported being greatly concerned about the need for full-time employment with benefits, more job stability, better program resources, and more opportunities for professional development.

While most ESL literacy teachers have college degrees, the degrees may be in various fields. Those with degrees in education are likely to be prepared to teach children or adolescents, not adults. Those with degrees in reading may have had little preparation for teaching literacy in a second language. And, until recently, even the M.A. programs for ESL educators (Teachers of English to Speakers of Other Languages (TESOL), Applied Linguistics) focused on the needs of elementary, secondary, or university students, not on adults with limited education. For many adult ESL teachers, staff development consists of voluntary attendance at workshops, conferences, or seminars for a day or two per year (Kutner, 1992; Tibbetts, Kutner, Hemphill, & Jones, 1991). Literacy volunteers, working in a one-to-one tutoring situation, often receive only 15 to 20 hours of preparation during the first year of teaching, with even less training in subsequent years (Tibbetts, et al., 1991).

The Role of Credentialing or Certification

The great demand for adult ESL literacy education and the diverse needs of adult ESL literacy learners have forced the profession to engage in a delicate balancing act in deciding who is qualified to teach. While concerns about professionalizing teaching are addressed by calls for strong academic credentials, credentialed teachers who understand literacy issues and have experience teaching language to minority adults are difficult to find (and to keep). The field grapples with ensuring competence and fostering professionalism "without establishing rigid certification requirements that deny professional opportunities for good teachers who lack academic credentials" (Wrigley & Guth, 1992, p.196).

The concern for professionalization of the field has led many to suggest the need for some kind of certification process involving participation in university courses. Others, however, point out that credentialing may be more appropriate for the field. Credentialing (involving demonstration of proficiency) would allow for multiple routes of access to adult ESL literacy teaching and would also serve to validate practitioners' existing knowledge, skills, and experiences. Practitioners with what Auerbach (1992, p. 28) refers to as "formal qualifications," including knowledge of theories of first and second language literacy, may have limited experience working in linguistically and culturally diverse communities. Conversely, members of these communities with informal qualifications, including understanding learners and the potential uses and contexts for literacy in their communities, may have limited theoretical knowledge. Ideally, both types could learn from each other and create a workforce that "mirrors the diversity" [of adult ESL learners] "and the diversity of contexts in which they seek to learn" (Lytle, Belzer, & Reumann, 1992, p.9).

Models for Effective Professional Development

Although many believe that credentialing could play a valuable role in the field, there are few models of comprehensive professional development for adult ESL literacy teachers that might lead to a credentialing process. This section uses a framework developed by Wallace in his work with foreign language teachers (cited in Wrigley & Guth, 1992) to suggest three promising models for professional development. They include a craft or mentoring model, in which inexperienced teachers are paired with experienced teachers; an applied science model, in which relevant research is linked with practical experience; and an inquiry-based model, in which research, teacher education, and teaching occur concurrently. Ways of combining these models to provide a true learning laboratory are also discussed.

The **craft** or **mentoring model** relies on the knowledge of an experienced practitioner to mentor less experienced practitioners. In the refugee education programs in Southeast Asia, host country teachers collaborate with one another and with a master teacher to

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develop lesson plans and share ideas for classroom activities. At City University of New York, master teachers open up their Adult Basic Education (ABE)/ESL classes to less experienced colleagues who are reimbursed for observing demonstration lessons. In K-12 education, alternative or "fast-track" certification programs are available to attract both under-represented minority groups and math and science professionals to teaching. These programs involve a summer orientation followed by a series of mentoring and other support activities during the first year of teaching. Returning Peace Corps volunteers with extensive experience in fields such as English language teaching can also enroll in alternative certification programs. A comparable program could be developed for potential adult ESL literacy teachers who have undergraduate degrees in related fields but lack specific education or appropriate teaching experience, as well as for community members who have valuable teaching and cultural experience but lack a background in theory and research.

The **applied science** or **"from theory to practice" model** links relevant research with teaching practice. The Adult ESL Teacher Training Institute, developed for California, has been implemented in many other states. Instruction consists of a series of sequenced, skill-based training sessions involving the use of video training packages by trainers who are experienced teachers and certified by the Institute (Savage, 1992). Video, satellite telecommunications, and other technology now make it possible for this model to be offered through distance education. Through video segments on teaching techniques and administrative strategies, Los Angeles County is using its Educational Telecommunications Network to provide training for adult ESL literacy teachers and administrators. A similar set of videotapes on exemplary programs has been developed by the author and her colleagues at the Center for Applied Linguistics. (*Sharing What Works* is available from NCLE at the address on the preceding page.)

The **inquiry** or **"reflective teaching" model** is an exciting approach in which teachers become active researchers—reading about, sharing, observing, critically analyzing, and reflecting upon their own practice in order to improve it. This model involves teachers in all stages of research, from determining the questions to be investigated, identifying research methods, and analyzing results, to reflecting on what changes in practice the results might indicate. At the Adult Literacy Practitioner Inquiry Research Project in Philadelphia (Lytle et al., 1992), teachers participate in an ongoing seminar where they share what they have learned from developing and using alternative assessment tools in the classroom, examining learning strategies of students, and completing other practice-based projects. At the University of Massachusetts Bilingual Community Literacy Project, teachers in three well-established, community-based adult literacy programs and faculty of the University of Massachusetts, Boston, research ways of creating closer links with the communities in which the programs are located and of involving more community members as teachers.

Professional development schools provide an exciting example of how a combination of the three models in one setting brings together aspiring and experienced teachers, teacher educators, and others involved in education to learn from one another (President's Commission on Teacher Education, 1992). Here, specially designated elementary or secondary schools serve as loci for research and improvement of practice by teachers and other school personnel who work collaboratively with university teacher educators.

There is much to recommend the use of a **combination model** for the improvement of adult ESL literacy education. The principle would be the same—to bring together teachers and other practitioners at all stages of their development to provide a laboratory (in a community center, worksite, or adult education program) where they could demonstrate and expand their knowledge, skills, and experiences. TESOL teacher educators and applied linguists would have much-needed, authentic adult education contexts in which to test both theory and practice; beginning teachers would be provided with both formal education and opportunities to learn from their experiences; and more experienced teachers would serve as mentors, conduct research related to their own classes, and reflect upon and share their experiences.

Conclusion

Expanding the professional development opportunities available to ESL literacy teachers will require changes in adult education policy and practice. Good models of credentialing and certification and of comprehensive professional development do exist. An exploration of these models leading to their implementation would help to create a better trained workforce while simultaneously building a much-needed research base in adult ESL literacy. In so doing, a major step would be taken towards achieving the professionalism so needed in the field.

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CREATING MEANINGFUL PERFORMANCE ASSESSMENTS

Stephen N. Elliott

Performance assessment is a viable alternative to norm-referenced tests. Teachers can use performance assessment to obtain a much richer and more complete picture of what students know and are able to do.

Defining Performance Assessment

Defined by the U.S. Congress, Office of Technology Assessment (OTA) (1992), as *testing methods that require students to create an answer or product that demonstrates their knowledge and skills*, performance assessment can take many forms including

- Conducting experiments.
- Writing extended essays.
- Doing mathematical computations.

Performance assessment is best understood as a continuum of assessment formats ranging from the simplest student-constructed responses to comprehensive demonstrations or collections of work over time. Whatever format, common features of performance assessment involve

1. Students' construction rather than selection of a response.
2. Direct observation of student behavior on tasks resembling those commonly required for functioning in the world outside school.
3. Illumination of students' learning and thinking processes along with their answers (OTA, 1992).

Performance assessments measure what is taught in the curriculum. There are two terms that are core to depicting performance assessment:

1. Performance: A student's active generation of a response that is observable either directly or indirectly via a permanent product.
2. Authentic: The nature of the task and context in which the assessment occurs is relevant and represents "real world" problems or issues.

How Do You Address Validity in Performance Assessments?

The validity of an assessment depends on the degree to which the interpretations and uses of assessment results are supported by empirical evidence and logical analysis. According to Baker and her associates (1993), there are five internal characteristics that valid performance assessments should exhibit:

1. Have meaning for students and teachers and motivate high performance.
2. Require the demonstration of complex cognition, applicable to important problem areas.
3. Exemplify current standards of content or subject matter quality.
4. Minimize the effects of ancillary skills that are irrelevant to the focus of assessment.
5. Possess explicit standards for rating or judgment.

When considering the validity of a performance test, it is important to first consider how the test or instrument "behaves" given the content covered. Questions should be asked such as:

- How does this test relate to other measures of a similar construct?
- Can the measure predict future performances?
- Does the assessment adequately cover the content domain?

It is also important to review the intended effects of using the assessment instrument. Questions about the use of a test typically focus on the test's ability to reliably differentiate individuals into groups and guide the methods teachers use to teach the subject matter covered by the test.

A word of caution: Unintended uses of assessments can have precarious effects. To prevent the misuse of assessments, the following questions should be considered:

- Does use of the instrument result in discriminatory practices against various groups of individuals?
- Is it used to evaluate others (e.g., parents or teachers) who are not directly assessed by the test?

Providing Evidence for the Reliability and Validity of Performance Assessment

The technical qualities and scoring procedures of performance assessments must meet high standards for reliability and validity. To ensure that sufficient evidence exists for a measure, the following four issues should be addressed:

1. *Assessment as a Curriculum Event.* Externally mandated assessments that bear little, if any, resemblance to subject area domain and pedagogy cannot provide a valid or reliable indication of what a student knows and is able to do. The assessment should reflect what is taught and how it is taught.

   Making an assessment a curriculum event means reconceptualizing it as a series of theoretically and practically coherent learning activities that are structured in such a way that they lead to a single predetermined end. When planning for assessment as a curriculum event, the following factors should be considered:

   - The content of the instrument.
   - The length of activities required to complete the assessment.
   - The type of activities required to complete the assessment.
   - The number of items in the assessment instrument.
   - The scoring rubric.

2. *Task Content Alignment with Curriculum.* Content alignment between what is tested and what is taught is essential. What is taught should be linked to valued outcomes for students in the district.

3. *Scoring and Subsequent Communications with Consumers.* In large scale assessment systems, the scoring and interpretation of performance assessment instruments is akin to a criterion-referenced approach to testing. A student's performance is evaluated by a trained rater who compares the student's responses to multitrait descriptions of performances and then gives the student a single number corresponding to the description that best characterizes the performance. Students are compared directly to scoring criteria and only indirectly to each other.

   In the classroom, every student needs feedback when the purpose of performance assessment is diagnosis and monitoring of student progress. Students can be shown how to assess their own performances when:

   - The scoring criteria are well articulated.
   - Teachers are comfortable with having students share in their own evaluation process.

4. *Linking and Comparing Results Over Time.* Linking is a generic term that includes a variety of approaches to making results of one assessment comparable to those of another. Two appropriate and manageable approaches to linking in performance assessment include:
   - Statistical Moderation. This approach is used to compare performances across content areas for groups of students who have taken a test at the same point in time.
   - Social Moderation. This is a judgmental approach that is built on consensus of raters. The comparability of scores assigned depends substantially on the development of consensus among professionals.

How Can Teachers Influence Students' Performances?

Performance assessment is a promising method that is achievable in the classroom. In classrooms, teachers can use data gathered from performance assessment to guide instruction. Performance assessment should interact with instruction that precedes and follows an assessment task.

When using performance assessments, students' performances can be positively influenced by:

1. Selecting assessment tasks that are clearly aligned or connected to what has been taught.
2. Sharing the scoring criteria for the assessment task with students prior to working on the task.
3. Providing students with clear statements of standards and/or several models of acceptable performances before they attempt a task.
4. Encouraging students to complete self-assessments of their performances.
5. Interpreting students' performances by comparing them to standards that are developmentally appropriate, as well as to other students' performances.

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Empowering the Faculty Mentoring Redirected and Renewed

Gaye Luna and Deborah L. Cullen

The concept of quality improvement has been incorporated into higher education within the last decade. Incumbent with this concept is the empowerment of college and university faculty—to harness their unique talents and skills and promote their professional growth. For years, business and industry has applied the philosophy and principles of mentoring to attract, retain, and promote junior employees, and mentoring has improved individual and corporate performance and effectiveness.

In translating these same mentoring concepts to higher education, strategies, guidelines, and programs have been developed and implemented to empower faculty through mentoring. For example, mentoring has been known to invigorate senior faculty, to help junior professors learn the ropes, and to assist female and minority faculty members in understanding the organizational culture.

Mentoring embraces a philosophy about people and how important they are to educational institutions. *Empowering the Faculty* synthesizes the literature on mentoring in terms of conceptual frameworks, mentoring arenas, and roles and functions of mentors and proteges. It also discusses the dynamics of mentoring for empowering faculty members as leaders and the importance of mentoring women and minorities in academe. A discussion of planning mentoring and faculty mentoring models focuses on developing and empowering faculty and ultimately benefit the institution.

Why Should Academe Be Concerned with Mentoring? Not only does mentoring develop the profession; "by not mentoring, we are wasting talent. We educate, and train, but don't nurture" (Wright and Wright 1987, p. 207). The literature overwhelmingly points to benefits to the organization, the mentor, and the protege. Mentoring is useful and powerful in understanding and advancing organizational culture, providing access to informal and formal networks of communication, and offering professional stimulation to both junior and senior faculty members. Mentoring is a continuation of one's development as defined by life cycle and human development theorists in terms of life sequences or stages, personality development, and the concept and value of care. (Erikson 1963 and Levinson et al. 1978).

How Does Mentoring Empower the Faculty? Mentoring supports professional growth and renewal, which in turn empowers faculty as individuals and colleagues (Boice 1992). Teaching and research improve when junior faculty are paired with mentors, job satisfaction and organization socialization greater. Not only do proteges become empowered through the assistance of a mentor, but mentors themselves also feel renewed through the sharing of power and the advocacy of collegiality.

Can Mentoring Assist in Faculty Leadership? Experts in the field of mentoring point out that mentoring is developmental and continuous and may address a variety of faculty career needs over a period of time. Faculty can develop as leaders through the receipt of professional and institutional information; support, sponsorship, and stimulation; advice, assistance, and guidance; and feedback and direction toward goals. Faculty involved in mentoring are more likely to have opportunities to develop not only professionally (career

orientation) but also personally (psycho-social needs) over the span of their careers (Kram 1986).

Does Mentoring Involve Special Considerations? Research emphasizes the benefits of mentoring programs and the successes of those who have experienced mentoring. But mentoring must fit the culture and environment of the educational institution, and faculty must be involved in the design and implementation of strategies and plans for mentoring. Mentoring might need to address the concerns and needs of women and minorities in academe. Statistics and research studies point to these professionals' experiences in higher education as different in terms of scholarship, advising assignments, teaching loads, and service to the community, profession, and institution. As a first step, mentoring has been important in assisting new female and minority faculty members to feel comfortable with the academic environment (Maack and Passett 1994) .

What Can Institutions Do? Empowering the faculty through mentoring requires careful planning so that the educational institution's needs are incorporated. Although mentoring programs have similar steps, purposes, and activities, programs need to be customized to meet the goals of the proteges, the mentors, and the community college or university. Recommendations include raising campus awareness about the importance of mentoring, establishing a mentoring program with faculty assistance and input, providing recognition to those who participate, and providing support through institutional resources. Planned mentoring programs include establishing purpose and goals, assessing organization's policies, identifying and training participants (both proteges and mentors), and evaluating and modifying the program.

What Must Be Done in the Future? Although informal mentoring programs are often found in community colleges and universities, no existing body of literature synopsizes or analyzes these programs. What works well at one educational institution is not readily known to others interested in developing mentoring programs. Planned, formalized mentoring programs are even rarer, and some of those that exist have failed to determine evaluative outcomes in terms of proteges, mentors, and institutional goals and objectives. Those interested in mentoring research need to identify those programs which have been successful and understand why. And research on the specific benefits of mentoring programs for female and minority faculty members—at both the community college and university levels— needs to be conducted.

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This report was prepared by the ERIC Clearinghouse on Higher Education in cooperation with the Association for the Study of Higher Education and published by the Graduate School of Education and Human Development at the George Washington University. Each report is a definitive review of the literature and institutional practice on a single critical issue. Many administrators subscribe to the series and circulate reports to staff and faculty committees with responsibility in a report's topic area.

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90

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K-12 Technology Planning at State, District, and Local Levels

by Larry S. Anderson

Introduction

In the early 1990s, the Council of Chief State School Officers (CCSSO), a professional organization of state superintendents of education, released a position paper (Improving, 1991) advocating that all states develop and maintain written plans for integrating technology in the education curriculum. In the ensuing years, with the added incentive provided by Goals 2000 legislation, (Congress, 1993) many states have completed, or are currently working on technology plans.

Key Principles of Technology Planning

- **Include people in the community.** Planners need to involve all school and community "stakeholders" in the planning process. This is probably the most important advice one can receive related to technology planning.
- **Establish timelines and monitor them often.** Planning will be far more successful if key participants work from a mutually-understood timeline. It is a good idea to print the timeline and display it prominently. The timeline should be addressed and monitored often. This will help keep planners on task and ensure that goals are reached in a timely fashion.
- **Delegate responsibilities for planning.** The chairperson of the planning committee should make use of the particular expertise and talents of each committee member when assigning responsibilities. It is important to compliment committee members when they perform admirably.
- **Evaluate.** Technology planning experts often say that there are three things to remember when building and implementing a technology plan: "evaluate, evaluate, evaluate." Planners will need to monitor all planning activities and include an evaluation program that will help them track the success of their activities.

Local Planning

A local or building level technology plan is more specific than a district or a state plan. A local plan focuses on the learner and the associated activities, principles, and materials required to ensure that the desired instructional activities occur. Teachers and administrators who develop local plans will need to pay strict attention to the curriculum issues in the school. Technologies will support curriculum delivery and learning activities. A local technology plan will need a vision statement, a mission statement, and goals for how technology will be used in teaching and learning.

District Planning

School district technology plans provide strategies for incorporating technological solutions in all local schools. A district plan provides an overview of what local schools wish to accomplish. District planners should remember to involve a cross-section of leaders from various schools in the district in the planning process. The committee needs to hold periodic "town meetings" to explain the plan, report progress, and explain related activities. The district planning committee should seek and acquire "buy-in" throughout the process from all members of the community.

The scope of planning is much broader at the district level than at the local level. Curriculum concerns, for example, will span a greater breadth of subject matter. Districts need to plan for great diversity as they consider the ages of students, teaching delivery methods, and assessment techniques. Since there may be local variance in some of the key elements that go into a district plan, it is important that planners incorporate input from local schools in their technology plans.

A district plan will include, and address in detail, elements that may not appear in a local plan at all. For example, a district plan might include district funding strategies, public relations tactics, and strategies for using technology in administration, transportation, food service, guidance, and student services. Most importantly, the district needs to outline how it will provide leadership and guidance for those who will implement and benefit from the plan.

State Planning

Just as a district technology plan is more general and less specific than a local plan, so a state plan is more general and less specific than a district plan. While some parts of a state plan will have elements that are specific, their specificity will deal with principles that are general in nature. A state-level plan addresses many issues mentioned in school district plans, and may provide a compilation of concerns and desires illuminated by the district plans. A state may want to describe how its financial support for districts will enable schools to integrate technologies into instruction and administration. A state may also want to describe the process by which districts will be accountable to the state for the funds given them.

Dovetailed Elements

While local, district, and state plans are significantly different in certain areas, several similarities exist. Planners use the term "dovetail" to describe the manner in which these plans fit with each other.

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State-level planners need to decide whether they will adopt a top down or bottom-up scheme. If a top-down approach is taken, the state will fashion a plan, then ask districts to follow the state's guidelines. In some cases, where the state uses a top-down technique, the district may employ a bottom-up method. For example, the district might craft its vision statement only after it has compiled vision statements from all schools within the district.

A state plan will, most likely, define a framework into which district plans should fit. Often, statewide technology coordinators will develop a handbook that district planners will use as a guide for building the district plan. In this way, the district plan will "fit," or dovetail into the state plan. The district, then, will use input from local plans to dovetail into the district plan.

Realities of Planning

- **Financial.** A technology plan needs to address the amount of money that will be required to implement and maintain whatever the plan proposes, how matching money, if necessary, will be sought, how leveraged money might be needed in the future, how finances will be managed, what the contingency plans might be if additional funding is secured or if a shortfall occurs, and how funds will be allocated to pay for planned obsolescence. Planners need to remember that public funds are employed in the infusion of technologies into instruction; therefore, strong accountability to the community is necessary.

- **Technical.** As state, district, and local groups consider and include the technical components of their plans, they need to recognize the impact of rapid technological change and growth. Plans need not focus on, but should certainly include hardware and software. Inclusion of a detailed technical plan that addresses technological obsolescence will help to plan for future equipment upgrades.

- **Human capital.** A technology plan needs to outline the ways in which human talent will be incorporated. Many models show effective employment of human capital, and planners need to examine existing technology plans that demonstrate how this is done.

- **Architectural.** When planners specify the design of structures or areas where technology will be used, careful attention needs to be devoted to eliminating any obstacles that will obstruct or hinder teaching and learning. Consulting with an experienced architect is well worth the time and money.

- **Legal.** At all levels of planning, legal concerns are important. Not only do planners need to consider protection for the "system," but strategies need to be outlined for the protection of students and other learners. Consult with community resources for legal advice.

Summary

Although technology planning occurs at multiple "levels," many principles are identical. Planners need to engage the services, creativity, and assistance of all stakeholders. Efforts of all participants in the planning process need to be marshaled to meet established timelines, to accept delegated responsibilities, and to evaluate progress along the way. Planners at the local, district, and state levels are encouraged to share the work they create. Through open, willing sharing, all learners will benefit.

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Making Time for Teacher Professional Development

Ismat Abdal-Haqq

Does professional development for teachers have a place in school improvement?

For many years, teachers and other educators have used district-sponsored staff development or university course work to improve individual skills, qualify for salary increases, and meet certification requirements. Professional development rewarded educators with personal and professional growth, greater job security, and career advancement. Schools benefitted primarily at the classroom level through whatever added value the learning experience gave to an individual teacher's practice. However, in recent years we have seen growing appreciation for the potential impact of professional development on the overall school, not just individual classrooms.

Awareness of professional development's value in advancing school improvement is evident in several state and national reports, as well as in research reports on school restructuring initiatives. The 1994 National Education Commission on Time and Learning (NECTL) report, *Prisoners of Time*, indicates that what teachers are expected to know and do has increased in amount and complexity. A National Governors' Association report (Corcoran, 1995) notes that systemic reforms place many demands on teachers—improving subject-matter knowledge and pedagogical skills; understanding cultural and psychological factors that affect student learning; and assuming greater, and in some cases new, responsibilities for curriculum, assessment, outreach, governance, and interagency collaboration. In an Indiana Department of Education report, Bull, Buechler, Didley, and Krehbiel (1994) point out that meeting these demands may be particularly stressful for America's aging teaching force, which averages 14.5 teaching years. For the most part, these teachers received their training at a time when teaching did not routinely require many of the skills that are needed to function effectively in restructured schools. Redefinition of teacher work has led to reconceptualizing professional development and to increased regard for its role in many quarters, particularly when large-scale systemic reform initiatives are launched (Kentucky Education Association, 1993).

Teachers, researchers, and policymakers consistently indicate that the greatest challenge to implementing effective professional development is lack of time. Teachers need time to understand new concepts, learn new skills, develop new attitudes, research, discuss, reflect, assess, try new approaches and integrate them into their practice; and time to plan their own professional development (Cambone, 1995; Corcoran, 1995; Troen & Bolles, 1994; Watts & Castle, 1993). Cambone (1995) points out that teachers, as adult learners, need both set-aside time for learning (e.g., workshops and courses) and time to experience and digest new ideas and ways of working.

This Digest outlines what research and best practice tell us about effective professional development for teachers working in restructured, learner-centered schools. It considers the implications of traditional scheduling patterns for implementating effective professional development and shares some approaches that various schools and districts have taken to finding time for professional development.

What are some characteristics of effective professional development?

Effective professional development addresses the flaws of traditional approaches, which are often criticized for being fragmented, unproductive, inefficient, unrelated to practice, and lacking in intensity and follow-up (Bull et al., 1994; Corcoran, 1995; *Professional Development*, 1994). Effective professional development:

- is ongoing;
- includes training, practice, and feedback; opportunities for individual reflection and group inquiry into practice; and coaching or other follow-up procedures;
- is school-based and embedded in teacher work;
- is collaborative, providing opportunities for teachers to interact with peers;
- focuses on student learning, which should, in part, guide assessment of its effectiveness;
- encourages and supports school-based and teacher initiatives;
- is rooted in the knowledge base for teaching;
- incorporates constructivist approaches to teaching and learning;
- recognizes teachers as professionals and adult learners;
- provides adequate time and follow-up support; and
- is accessible and inclusive.

Do typical school schedules support effective professional development programs?

A major theme in *Prisoners of Time* (1994), the NECTL report, is that U. S. students and teachers are victims of inflexible and counterproductive school schedules. Professional development and collaboration generally must take place before or after school or in the summer, thus imposing on teachers' personal time; during planning or preparation periods, which cuts into time needed for other tasks; or on the limited number of staff development days. Teachers who sacrifice personal time or preparation time often experience burn-out from trying to fulfill competing demands for their time.

Professional development has not been widely seen as an intrinsic part of making teachers more adept and productive in the classroom (Watts & Castle, 1993); thus, school schedules do not normally incorporate time to consult or observe colleagues or engage in professional activities such as research, learning and practicing new skills, curriculum development, or professional reading. Typically, administrators, parents, and legislators view unfavorably anything that draws teachers away from direct engagement with students. Indeed, teachers themselves often feel guilty about being away from their classrooms for restructuring or staff development activities (Cambone, 1995; Raywid, 1993).

A number of researchers have contrasted this pattern with the approach found in foreign countries, particularly in

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China, Japan, and Germany where time for collegial interaction and collaboration are integrated into the school day (NECTL, 1994). For example, in many Asian schools, which generally have larger class sizes than U.S. schools, teachers teach fewer classes and spend 30-40% of their day out of the classroom, conferring with students and colleagues or engaged in other professional work. Donahoe (1993) suggests that such set-aside time is particularly important when significant school improvement plans are underway and advises states or school districts to formally establish "collective staff time," just as they set minimums for class time and teaching days.

How do schools and districts make more time for professional development?

In a study of regional and national innovative school groups, Raywid (1993) found three broad approaches to finding time for teachers to collaborate: (1) adding time by extending the school day or year, (2) extracting time from the existing schedule, and (3) altering staff utilization patterns. Given below are examples of the five types of time created for teacher development that Watts and Castle (1993) identified in a survey of schools involved in National Education Association initiatives.

Freed up time—using teaching assistants, college interns, parents, and administrators to cover classes; regularly scheduled early release days.

Restructured or rescheduled time—lengthening school day on four days, with early release on day five.

Better-used time—using regular staff or district meetings for planning and professional growth rather than for informational or administrative purposes.

Common time—scheduling common planning periods for colleagues having similar assignments.

Purchased time—establishing a substitute bank of 30-40 days per year, which teachers can tap when they participate in committee work or professional development activities.

Block scheduling can also make it easier to carve professional development time from the school day (Tanner, Canady, & Rettig, 1995). For example, Hackmann (1995) describes a middle school block schedule that frees one-fourth of the faculty to plan or engage in other professional work during each period of the day. At least one day a week, teachers in the Teaching and Learning Collaborative in Massachusetts have no teaching duties. They can use this Alternative Professional Time to pursue professional interests or alternative roles, such as writing curriculum, conducting research, supervising student teacher interns, or teaching college classes. This arrangement is facilitated by the presence of full-time teaching interns and team-teaching. (Troen & Bolles, 1994). Newer technologies, such as Internet and video conferencing, can give teachers access to instructional resources and collegial networks (*Professional Development*, 1994).

There may be opposition to some of the above mentioned strategies. Adding more pupil-free professional development days can be costly and may provoke opposition from financial managers or legislators. Cambone (1995) points out that schools do not exist in a vacuum, isolated from the larger community. Extending the school day and school year to accommodate more professional development time can upset parents' child care arrangements and family vacations. If schools remain open during the summer and teenagers are not free for summer jobs in places like amusement parks, the local economy can be affected and commercial interests may object to such a schedule change. School maintenance agendas, which often schedule big projects over the summer, may also be affected by extending the school year.

Perhaps the most formidable challenge to institutionalizing effective professional development time may be the prevailing school culture, which generally considers a teacher's proper place during school hours to be in front of a class and which isolates teachers from one another and discourages collaborative work (NECTL, 1994). It is a culture that does not place a premium on teacher learning and in which decisions about professional development needs are not usually made by teachers but by state, district, and building administrators. Paradoxically, implementing a more effective pattern of teacher professional development requires struggling against these constraints, but it may also help to create a school climate that is more hospitable to teacher learning.

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NATIONAL AND STATE PERSPECTIVES ON PERFORMANCE ASSESSMENT

Martha Thurlow

As a result of educational reform efforts over the past 2 decades, large scale assessment is being reconfigured with an emphasis on performance approaches. Unlike traditional multiple choice tests, performance assessments require students to create an answer or product that demonstrates their knowledge and skills. For students receiving special education services, issues involving inclusion and the provision of adequate accommodations emerge when national and state authorities use performance assessments to monitor the educational system.

Infusing Performance Assessment Into National Programs

The United States has a comprehensive assessment program at the federal level that tracks students' knowledge and skills over time. Performance based items are finding their way into national assessment systems.

1. National Assessment of Educational Progress (NAEP). Known as the U.S.'s national "report card," the NAEP surveys students' educational achievement across time. In 1992, NAEP began experimenting with constructed-response items—a type of performance assessment—in the subject areas of mathematics and reading. For example:

   Grade 8: (Student reads and uses an actual bus schedule that includes tables, maps, and text.) Monthly bus passes are not valid on which routes?

   Grade 8: (Student reads two passages from the Oregon Trail, one an informational account of the Trail and the other a narrative piece based on a diary entry.) Pretend that you are a young adult of the 1840s who has caught a case of "Oregon fever." Use information from both passages and from your own knowledge to explain what you would do about Oregon fever and why.

2. National Adult Literacy Survey (NALS). As administered in 1992, NALS assessed adult literacy skills. Literacy tasks involving materials that adults typically encounter in their daily activities were built into the assessment.

How Have Students Receiving Special Education Services Fared on the NAEP and NALS?

Inclusion in the national data collection programs as a whole will enable students to be included in national assessments that use performance-based measures. Unfortunately, about 50% of students with disabilities are typically excluded from participating in national assessments. Why is this so?

- *Guidelines are exclusive*: It is questionable whether the guidelines themselves result in high exclusion rates. For example, NAEP guidelines allow students to be excluded if the student is mainstreamed less than 50% of the time in academic subjects and is judged to be incapable of taking part in the assessment.
- *Accommodations are not available*: Neither the NAEP or the NALS allow any accommodations or adaptations to be made for individuals who need them in order to participate meaningfully in the assessment.

Overall, school officials hesitate to include students with disabilities into high-stakes testing situations for obvious reasons. Without a guarantee that all districts are using the same guidelines to make exclusion/inclusion decisions, and without sensitivity to the individual needs of students that impede their success in testing situations, it is questionable whether districts will actively insist on including all students. However, at this time, a number of special educators are calling for national officials to study the best way that students with disabilities might be included in such assessments.

Suggestions for Increasing the Participation of Students with Disabilities in National Assessments

The use of performance assessments in national data-collection programs has been relatively narrow in scope; however, there is some evidence that assessment programs that have been inclusive of students with disabilities in the past (i.e., traditional assessments), tend to be inclusive of students in performance assessments. Key aspects to promoting participation of students with disabilities in large-scale assessments include

- Clarification of guidelines for exclusion/inclusion, covering guidelines related to test development, testing, and reporting of results.
- Use of reasonable accommodations, adaptations, and other modifications in assessment procedures (i.e., ones that would not threaten the technical adequacy of an assessment, such as using an interpreter for a student with a significant hearing impairment to give directions that are typically given orally).
- Monitoring of participation levels.
- Research on the effects of various modifications in assessments (including the use of different types of performance assessments) on the performance of students with disabilities and on the technical characteristics of the instruments.

Infusing Performance Assessment into State Programs

Some 38 states are currently using or considering using some form of performance assessment in their statewide testing programs. Categories of assessment items include:

- Enhanced multiple-choice.
- Short-answer open-ended.
- Extended-response open-ended.
- Interview.
- Observation.
- Individual performance assessment.
- Group performance assessment.
- Portfolio or learning record.
- Project, exhibition, demonstration.

The content areas most typically targeted for performance assessment are writing, mathematics, and reading.

How Have Students Receiving Special Education Services Fared on Statewide Assessments?

The same problems found at the national level of excluding students with disabilities are also apparent at the state level. Complicating this situation is the fact that many states have no formal means in place for determining the extent to which students with disabilities were included in assessments or for isolating the data of students with disabilities from that of other students.

Presently, there is an effort in the states to quantify the number of students who are exempted or excluded from participation in the assessment, and to monitor closely the appropriateness of such exclusions.

Suggestions for Increasing the Participation of Students with Disabilities in Statewide Assessments

As new performance-based approaches are incorporated into state assessment programs, it is important to discern what it will take to ensure high participation of students with disabilities.

States can

1. Include students with disabilities in pilot tests. Keep data according to which students participated in the assessment, their category of disability, and their success.
2. Plan accommodations and adaptations for use by students with disabilities during the assessments.
   - Modify the presentation format—e.g., use a Braille version of the assessment; use an interpreter for a student with a significant hearing impairment.
   - Modify the response format—e.g., allow the student to produce the answers orally rather than in written form.
   - Modify time and scheduling—e.g., give the student more time to complete the assessment.
   - Modify the setting—e.g., have the student complete the assessment in a quiet area apart from other students.

   Refer to the student's IEP for specific accommodation strategies.
3. Consider equity issues—race, class, culture, gender biases—in crafting the assessments. Equity can become an issue when the performance tasks are within the experience of certain populations and not others. For example, consider the following example that recognizes the complications of disability: "Asking students to write about learning a sport, which is biased against those students whose disabilities, geographic location, or economic status have prevented them from learning a sport."
4. Monitor participation levels. Build in an accountability model that investigates consistently high levels of exclusion.
5. Clarify guidelines for exclusion and inclusion. Determine how results will be reported.

At the very least, states can make a commitment to include students with disabilities from the very start.

Although it is too early to tell if the use of performance assessments will result in greater participation of students with disabilities in statewide assessment programs, we can only hope that states will use this heightened interest as an opportunity to improve the educational experience for these students.

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Professional Teacher Development and the Reform Agenda

Mary E. Dilworth and David G. Imig

A New National Education Goal

The designation of "teacher education and professional development" as one of the National Education Goals (added to the original six in mid-1994) is genuine recognition that well-prepared teachers are essential to educational reform efforts:

By the year 2000, the nation's teaching force will have access to programs for continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.

The goal suggests that practicing teachers are key to the transformation of schools and that in order for teachers to lead the reform efforts, they need to be offered expanded and enriched professional development experiences. Such experiences should be tied directly to the emerging student performance standards and be continuous, site-based, teacher-designed, and organizationally focused. Professional development programs with these characteristics have to be viewed as essential or core activities that are less vulnerable to budget cuts.

Professional development is an integral part of current efforts to transform and revitalize education. The promise of a high-quality education for all children is dependent not only on a total restructuring of schools, but also on the knowledge and commitment of practitioners to restructuring. As school reform proponents Ann Lieberman and Lynne Miller state, "for school restructuring to occur, a combination of factors must be present *at the same time* and *over time*—including leadership, a shared mission, school goals, necessary resources, the promotion of colleagueship, and the provision of professional growth opportunities for teachers" (Lieberman & Miller, 1990).

Challenges to Teachers

Although education reform initiatives offer great promise, researchers suggest that they also pose significant challenges to teachers as individuals and as members of a wider professional community. According to Judith Little (1993), "one test of teachers' professional development is its capacity to equip teachers individually and collectively to act as shapers, promoters, and well-informed critics of reform" (p.130). At the same time, Little cautions against leveling full responsibility for implementing education reforms on teachers. She has identified five areas as being integrally tied to enhanced teaching and therefore essential to professional development: reforms in subject-matter teaching; equity for diverse student populations; changes in the nature, extent, and use of assessment; the social organization of schools; and the professionalization of teaching. Each suggests the need for teachers to gain new knowledge and enhanced skills.

Authors Mark Smylie and John Conyers (1991) contend that rapid changes in the characteristics, conditions, and learning needs of students will continue; that knowledge about teaching and learning will expand dramatically; and that schools will face ongoing pressures for accountability and reform. They conclude that "these conditions will create unprecedented demands for the development of teachers' knowledge and skills" (p. 12).

Teacher Professional Development as Reform

Schools of Education

In order to expand professional development and have it fulfill its promise of transforming teaching and learning, new relationships between schools and schools of education must be established. As teachers take greater responsibility for their own professional development and for the operation of their schools, they find less time and desire to pursue university instruction based in large measure on research. At the same time, faculty at colleges and universities find less access to the schools and to practitioners who validate new forms of pedagogy and practice. In this situation, neither party fully benefits from the knowledge of the other. Education school faculty, school district staff developers, and other providers of inservice experiences need to rethink their roles and relationships. Programs that develop or enhance the capacity of these providers are particularly important. Action research and professional development schools are among the emerging concepts that support collaborations among faculty, staff, and field-based practitioners.

Teacher Licensing

Not surprisingly, the policy community, in a reform posture, is currently focusing much attention on professional development and the establishment of new regulatory policies for licensing and relicensing teachers. Guided by emerging state content or subject-matter frameworks for students, state policymakers are seeking to align all facets of teacher development with these standards. Many states are currently:

- Restructuring the format for licenses, e.g., by developing initial or probationary licenses for the initial year(s) of teaching and reconsidering standards for advanced practice or specialized areas of practice.
- Sponsoring alternative providers of continuing education credits, including teacher organizations and for-profit enterprises.
- Developing or adopting performance-based licensure assessments (such as the new NTE "Praxis" examination) that accompany initial licensure or are used as part of relicensure based on subject-matter standards.
- Considering or establishing relationships between how graduates perform on licensure examinations and how teacher preparation programs are evaluated.
- Establishing or working with established teacher professional standards boards that participate in or control the licensure and relicensure function.
- Considering new forms of salary differentiation for teachers that correspond to new licensure formats.
- Considering or establishing linkages between the licensure process and national accreditation of teacher education. More than half of the states have established linkages between the National Council for Accreditation of Teacher Education (NCATE) and program

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approval; all states will have the option of linking NCATE with the state licensure system.

One of the major implications of these developments is a new perspective on the state's accountability function for the continuous performance of teachers. By requiring and supporting induction programs, states are implicitly recognizing that their licensure function means both public accountability and responsibility for support and improvement of teaching practice. The previously separate functions of assessment and professional development are being merged into a new state role that establishes higher, more performance-related standards and takes responsibility for ensuring that teachers can meet the standards. This trend holds promises for increased collaboration among state departments of education, schools, and teacher preparation institutions. The new state role also raises potential concerns, such as conflict of interest in the assessment process and inequities in the licensure system resulting from the uneven conditions of schooling across different districts.

Teacher Certification

The term "teacher certification" has recently come to have the same meaning in education as it does in other professions—a designation of advanced practice in a specialized area, based on a voluntary system of application and assessment. Since the mid-1980s, a comprehensive national certification initiative for teaching has been operating with substantial funding from private and corporate foundations and the federal government. The National Board for Professional Teaching Standards, which represents a reform mechanism that contributes to the continuing professional development of teachers, is developing a comprehensive system of national certification assessments that began operating in late 1994. The National Board, which draws membership and support from both major national teacher unions and a wide range of education constituents, has the potential to affect a broad range of issues through certification. These include:

- a nationally agreed-upon definition of advanced teaching practice in the individual disciplines and grade levels;
- state incentives for teachers to apply for certification, including differentiated pay scales;
- school district hiring practices that would recognize national certification status;
- equity in the distribution of nationally certified teachers across school districts within a state;
- differentiated staffing in schools to recognize distinct roles for certified teachers; and
- reciprocity arrangements across states to recognize the status of nationally certified teachers.

The individualized professional development process associated with National Board certification will likely have an impact on traditional preservice and inservice programs. States may use data on teacher performance on the certification assessments to make judgments about teacher preparation programs. The certification process may also trigger changes in K-12 schools as teachers align their instructional and assessment practices with professional standards. The National Staff Development Council's *Standards for Staff Development* (1994) offer additional guidance for teacher development and school change.

Conclusion

In the current climate of systemic reform, the professional development of teachers has taken on new prominence. There are a host of reasons for this new urgency, ultimately centering on the importance of the classroom teacher in promoting successful student learning. Without the continuous improvement of teaching (and of professional teachers), the reforms will fail. Professional development must serve the purpose of promoting teachers' continuous learning—of integrating new knowledge about teaching and learning within the social contexts in which teaching takes place.

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Reconceptualizing Professional Teacher Development

Introduction

The challenges and rewards of the teaching profession have never been greater. The range and type of information that students need to know far exceeds that of previous decades, and the academic expectations for all students are increasing in virtually every state and community. The nation's schools are more racially, ethnically, and linguistically diverse than at any other point in history, and there is much discussion about how all students will meet the emerging subject-matter standards. Most school systems seek to transform their schools to respond to a host of issues, ranging from these increased student expectations to the conditions that students must confront in their communities. It is clear that caring and competent teachers are vital to the success of each of these initiatives and equally clear that preservice and inservice teacher professional development must change to equip teachers to meet these challenges.

This Digest highlights ways in which new and seasoned teachers are developing a repertoire of skills and knowledge that complement education reform efforts.

New Conceptions for Teacher Development

In order to be of greater value to teachers and students, preservice and inservice professional development must be reconceptualized. Rather than seeing each stage of a teacher's professional life as distinct and separate, a more holistic view of the development of a teacher from novice to advanced practitioner is needed. In order to establish a rich learning environment for teachers throughout their careers, a number of prevailing concepts must be abandoned. Smylie and Conyers (1991) suggest that we must recast inservice programs to reflect the following paradigm shifts:

From deficit-based to competency-based approaches in which teachers' knowledge, skills, and experiences are considered assets. Professional development organized according to this approach will, in Smylie and Conyers' view, shift teachers away from dependency on external sources for the solution to their problems and toward professional growth and self-reliance in instructional decision making. This concept has emerged as crucial in initial teacher education as prospective teachers become increasingly diverse in background, age, and experience. Such a model also helps teachers understand the diverse K–12 student population (Zimpher & Ashburn, 1992; Delpit, 1988). Well-designed **case studjes**, which allow practicing teachers to learn from and value the experiences of others, are becoming more common as training instruments.

From replication to reflection, in which practicing teachers focus less on the transfer of knowledge and strategy and more on analytical and reflective learning. Smylie and Conyers suggest that this reflective approach will sharpen teachers' skills in problem solving, determining students' needs, and conducting **action research** that is designed to develop new knowledge and skills related specifically to their schools and classrooms. Providers of inservice programs need to consider, however, that teachers have little time during the school day to pause, reflect on practice, or conduct research. Ways need to be found to provide practicing teachers with such time.

Reflection has proven useful in the preparation of prospective teachers who are asked to maintain **student journals** and **portfolios**. Guided by seasoned professionals, beginning teachers use these tools to understand their own teaching strengths and weaknesses. Journals and portfolios also show promise for experienced classroom teachers and for college faculty to examine their beliefs, knowledge, and experiences over time.

From learning separately to learning together, in which practicing teachers are jointly responsible for their work in classrooms, and their wisdom and experiences are perceived as professional resources. Smylie and Conyers (1991) note that this conception has important implications for how schools are organized, in other words, as places for teachers to learn as well as to teach. This paradigm shift addresses one of the most pervasive conditions of classroom teachers—isolation, or the inability to learn and to communicate with colleagues in the place where it counts most—the school. Perhaps one of the most popular mechanisms for "learning together" is the **professional development or clinical school**. These professional development sites offer practicing teachers, prospective teachers, and college faculty the opportunity to exchange pedagogical knowledge and ideas at school.

From centralization to decentralization, in which the role of a school system's central administration shifts from identifying and organizing staff development activities to supporting and facilitating those that school-based staff have determined are important and necessary. Decentralization allows for more tailored professional development activities and has implications beyond the topic and content of the activity. One characteristic of this approach is that professional development, inservice in particular, increasingly is being conducted in and by school systems rather than in colleges and universities.

As Little (1993) notes, restructuring professional development around such concepts is easier said than done because the current system often contradicts or fails to accommodate new requirements and initiatives. Newly informed professional development calls not only for training, but also for the adequate opportunity to learn within a teacher's day-to-day work. On the other hand, in the absence of a good fit between the

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nature of a reform and the nature of professional development, schools and school systems are inclined to do something, and that something is likely to look like the existing menu of training options.

New Models for Preparation, Induction, and Development

In the past decade, scholars, prompted by education policymakers, focused much attention on reconceptualizing the manner in which we teach prospective teachers and ensure the continuing learning of practicing teachers. Genuinely new concepts have emerged from these deliberations so that today teacher education is talked of as a lifelong experience that extends from program admission to retirement. A number of new formats for such development have also emerged, not the least of which are professional development, partner, or clinical schools that are designed to train prospective, nurture novice, and refresh seasoned teachers on the school site (Darling-Hammond, 1994). Mentoring programs pair novice teachers with outstanding experienced teachers who can explain school policies and practices, share methods and materials, and help solve problems. Mentors may also guide the professional growth of new teachers by promoting reflection and fostering the norms of collaboration and shared inquiry (Feiman-Nemser & Parker, 1992).

Societal issues such as crime, drug and alcohol abuse, poverty, homelessness, and child abuse have also influenced how teachers practice and the nature of their training. It is becoming increasingly evident to many educators that greater collaboration among social service providers is necessary in order to meet the first National Education Goal—that all children in America will start school ready to learn—and to ensure effective academic careers for all students. Consequently, there are a number of comprehensive service or cross-professional training programs under development involving schools of education, medicine, law, nursing, criminal justice, and social work.

Conclusion

Asayesh (1994) states, "Over the past 5 to 10 years, more and more school districts have reorganized to give power to those most responsible for educating children" (p.2). Despite budget cuts, educators perceive that this decentralization, or site-based management, has created new opportunities for growth, particularly among school staff. According to Miller, Lord, and Dorney (1994), most school systems presume that an investment in professional development will pay off in teachers' implementation of innovations or in prescribed changes in their classroom practice. This view, while seemingly fair, is also limiting; it calls for results more definitive or immediate than can sometimes be expected.

Professional development is an aspect of school reform that is receiving enormous attention. It is also an area about which surprisingly little is known, with only a handful of studies that document its provision, costs, and effect.

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ERIC Clearinghouse on Adult, Career, and Vocational Education

Recruitment and Retention of Minority Teachers in Vocational Education

by Bettina A. Lankard

1994

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Although the number of minority students in U.S. schools continues to increase, the number of ethnically diverse teachers is declining. By the year 2000, it is estimated that minority students will comprise 33 percent of the school population and that this percentage will grow to 39 percent by the year 2020 (Johnson 1991). The number of minority teachers, however, is expected to decline. The American Association of Colleges for Teacher Education has predicted that minority teachers will represent less that 5 percent of all U.S. teachers by the year 2000. Currently, minorities make up only 16 percent of all secondary vocational teachers, no more than 10 percent of the faculty in postsecondary institutions, and less than 10 percent of university faculty in industrial education (Martinez 1991). This *ERIC Digest* examines the need to bring more minorities into the teaching profession, explores issues related to recruiting and retaining minorities as vocational teachers, and identifies strategies to help diversify vocational teacher education.

The Need

The multicultural classroom, which is relatively new to the educational system, creates a demand for teachers who are aware of the cultural differences within the student population, "differences that affect learning styles, behavior, mannerisms, and relationships with school and home" (Skylarz 1993, p. 22). Students from ethnically and racially diverse backgrounds have the highest rates of poverty and the highest school dropout rates (Williams 1992). These students need the support of teachers from their cultures who have an understanding of cultural and family practices and behaviors and who can serve as role models for educational achievement and success. Martinez (1991) contends that the lack of minority teachers to provide ethnic role models in schools could "contribute to the underachievement of minority students, provide little incentive for minority students to advance in school, and negatively affect their career and life aspirations" (p. 24).

Several factors contribute to the shortage of minority teachers. One factor is the low retention rate of minority students attending college (Yopp et al. 1991). Minority students who do graduate are increasingly entering business and industry or health professions rather than education. For the large number of minority students who attend community colleges, the difficulty of transferring to a four-year institution also limits teaching as a career option. Community colleges enroll 43 percent of all the African-American and 55 percent of all the Hispanic undergraduates in the United States, but only a small percentage of these students transfer (ibid.). Because many of the instructors in community colleges are vocational teachers, recruitment of students into vocational education and vocational education teaching careers has great potential.

Recruitment Strategies

Martinez (1991) offers several strategies to enhance the recruitment of minorities:

1. **Develop candidate pools.** Teachers, counselors, and administrators in high schools, community colleges, technical schools, and universities can collaborate to identify pools of talented minority students to recruit for the vocational education teaching professions.

2. **Promote vocational education in the schools.** Various strategies should be used to promote postsecondary education to vocational education students. One technique would be to have a vocational career day where university educators come to high schools and area vocational schools to discuss teacher education programs, college entrance requirements, financial aid, and so forth.

3. **Establish scholarships for minority students.** Financial aid is of great importance to minority students as many of them come from economically disadvantaged backgrounds and cannot pursue education without support.

4. **Recruit at community colleges.** Community colleges and technical institutes should make vocational education foundation courses available and have articulation agreements with universities that will facilitate student transfers. Kent State University and Cuyahoga Community College, both in Ohio, have collaborated to develop the Teaching Leadership Consortium, which is designed to recruit outstanding minority teacher candidates from the community college setting into university teacher education programs.

5. **Look for candidates in business and industry.** A public service advertising campaign conducted by Recruiting New Teachers, Inc., Belmont, Massachusetts, successfully recruited potential teachers from a variety of areas, including some employed in business and industry (Harris 1993). About half of the individuals who responded to the campaign (29 percent of the respondents were minorities) said they had been considering the profession for some time and were prompted by the predominantly television-oriented advertising campaign.

Other strategies for recruiting minority individuals into a teacher preparation course of study emerged from California State University at Fullerton's Teacher Track Project (Yopp et al. 1991). This project targeted instructional aides and high school students for recruitment. Its efforts were influenced by the results of a needs assessment survey that identified three factors considered to be roadblocks to obtaining a teaching credential: expense, need to quit job to attend classes, and uncertainty about where

to get help in selecting appropriate coursework. Project activities offered in response to these needs, represent effective recruitment practices: "the use of role models, the establishment of mentoring relationships between university faculty and community college students, the establishment of peer groups, the availability of financial aid incentives, and the distribution of promotional materials which reflect diversity" (p. 38). Support offered by the local school districts and the ongoing participation of university and community college faculty were mentioned as integral to the success of the project.

To enhance recruitment, Martinez (1991) suggests that minorities be included in all phases and at all levels of the recruitment process and that personal contact with students be emphasized:

- Vocational teachers could serve as mentors for their minority students.
- Colleges and universities can establish alternative vocational teacher, administrator, and counselor certification programs with flexible admissions policies for minorities with degrees who come to the education field from business and industry.
- School districts can pay for relocation expenses and housing assistance for minority vocational teachers, offer jobs to minority vocational student teachers, and encourage minority paraprofessionals and teachers to complete courses and obtain necessary certifications and degrees.
- Professional organizations can advance more minorities to organizational leadership positions and promote the idea of vocational education careers.

Retention Strategies

Efforts to retain minority teachers in vocational education should include institutional commitment to multicultural understanding and diversity. The Penn State Center for Minority Graduate Opportunities and Faculty Development has two offices to promote and support minority students and faculty: the Office for Minority Graduate Opportunities and the Office for Minority Faculty Development (Atwater and Lyons 1993). Mentoring, role modeling, peer guidance, review, and counseling are among methods used to enhance the intellectual and personal growth of Penn State's minority faculty. As another retention strategy, the Penn State Center offers a series of faculty development workshops, a number of networking and mentoring opportunities, and supplemental financial support for professional activities and research opportunities.

Commitment to Multicultural Education

Staff training in issues of cultural diversity can be a powerful strategy for recruiting and retaining minority teachers in vocational education. It not only enhances overall teacher effectiveness, but can serve to draw minority teachers to the institution by reflecting a commitment to multicultural education.

Skylarz (1993) presents several strategies for enriching teachers' multicultural understanding and suggests several incentives for drawing them to those practices:

Learning a second language. Teachers will realize a benefit and sense of satisfaction through improved communication within the classroom, with other faculty (some of whom will be minority teachers), and with parents.

Living in the community. A better understanding of the school's population is possible when teachers live in the community in which they teach.

Becoming involved in the community. An awareness of community events and participation in some of them can help teachers develop greater understanding of the community's culture(s).

Celebrating cultural events. With knowledge of the cultural backgrounds of the school population, teachers can work together to organize cultural events or celebrations for the classroom.

Successful recruitment and retention of minority teachers requires a cultural transformation within the institution. Faculty diversity need to be seen as crucial to the multicultural school environment. As noted by Skylarz (1993), "Multicultural understanding will require much more than a plan. It will require people working together, joining hands and sharing in a collaborative effort unlike anything we have seen in public education" (Skylarz 1993, p. 22). Such an effort is necessary to help diversify vocational teacher education.

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The Role of Assessment in Counselor Certification

Thomas Clawson

Certification of professional counselors is presently viewed in two realms, that of state regulation and of national voluntary credentialing. Many states use the term certification in two contexts, school counselor certification and certification to practice counseling privately for a fee. In this digest, we will consider national voluntary certification only.

The first national certification began in 1972 with the incorporation of the Commission for Certification of Rehabilitation Counselors. In 1979, the National Academy for Certified Clinical Mental Health Counselors began certifying counselors trained in the specialty of clinical mental health counseling. Soon after, in 1984, the National Vocational Guidance Association (now the National Career Development Association)began certifying career counselors. In 1983, the National Board for Certified Counselors (NBCC) began certification for general practice counselors. And, as this digest is being written, the International Association of Marriage and Family Counselors is beginning a certification process. Clinical mental health counselors and career counselors have merged with the National Board for Certified Counselors to become a specialty certification of the general practice of counseling.

Across the realm of certifications in the counseling profession is the common thread of assessing individual counselors, training, supervision, experience, and knowledge; the similarities across the processes are remarkable.

Methods of Assessment

Counselor certification begins with individuals providing certification boards with a portfolio of data pertaining to their training, supervision, experience, and knowledge. All are areas of difficulty in quantifying or qualifying.

Training

Training is perhaps the easiest certification area to assess but even in evaluation of coursework, a variety of factors are evident. Most academic training reviews require determination of term (semester, trimester, quarter) hours awarded for graduate study in regionally accredited institutions. Course titles of counseling and related disciplines number in the thousands. Certification boards must categorize courses by reviewing catalogue course descriptions or syllabi. While quantifying transcript review appears to be a simple task, it consumes a great proportion of portfolio review time.

A further complication in determining appropriate training appears when certifying boards accept nontraditional education. Processes must be developed that compare home study and other methods of delivery with traditional campus experiences. This may be done by designating which areas of study must be delivered by traditional professor/student/classroom methods and which courses may safely use nontraditional techniques such as distance learning. In counseling, the most important training dynamic is the demonstration of theory-to-practice transference. Topics requiring application of skills to counselees, such as group, individual, or family counseling and assessment of individuals or groups indicate the need for close supervision by a professor.

Supervision

Supervision duration is easily assessed if certification boards can define supervision and supervisors clearly. Then accurate reporting of supervision by supervisors establishes an hour total to judge against a standard number of hours. As the concept of certification has matured the qualification and definition of supervision has advanced. Defining and assessing supervision, however, is probably the least sophisticated and standardized certification area assessed at present. Bernard and Goodyear (1992) point out that as models of supervision grow the research and practice will bring forth clearer definitions.

Experience

Experience is easily quantified for assessment once standards and permutations are set. For example, certification boards may set a year or hour experience requirement and also set ways to accumulate hours of supervised experience at less than full time employment. Again, as certification evolves the ways of achieving experience have become more strict. In counseling, this is probably a result of the maturation of the profession.

Knowledge

Knowledge is relatively simple to assess if the universe of the information to be assessed is small. Counseling information included in the eight core areas of the Council for Accreditation of Counseling and Related Educational Programs are as follows: 1) Human growth and development; 2) Social/cultural and family foundations; 3) The helping relationship (including counseling theories); 4) Group dynamics, processes, and counseling; 5) Lifestyle and career development; 6) Appraisal of individuals; 7) Research and evaluation; and 8) Professional orientation. These core areas are an example of the discipline producing more and more information as the research and literature base of counseling grows. Therefore, sampling the relevant knowledge base becomes an

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increasingly difficult task. All counselor certification examinations employ multiple-choice, single-answer formats and range from 100 to 250 items per form.

Because the practice of counseling involves application of information to action, examination constructors face the task of applying knowledge data to cases or situations. The standard beginning point for this application is the job analysis or study of behaviors used in a profession. Most counselor certification exams are based upon comprehensive job analyses of practicing counselors. The National Organization for Competency Assurance requires state-of-the-art job analyses as a prerequisite for accreditation of certification programs (National Organization for Competency Assurance, 1993). Professional examinations which are not based upon comprehensive study of the necessary behaviors needed for professional practice are suspect even before reliability and validity statistics are gathered.

Job Analysis

Shimberg and Rosenfield (1980) identify the general purpose of job analyses as: a process that seeks information from a large number of incumbent practitioners regarding the most important aspects of the job; and the knowledge and skills needed to perform the job in a safe and effective manner (p.14).

Fine (1986) continues that job analyses can also provide definition of the behaviors needed to practice, knowledge and abilities needed in training curricula, and relevant assessments of performance (p. 55).

Loesch and Vacc (1993) describe job analyses as having multiple facets to obtain a picture of a profession. Three major categories of decisions must be considered in conducting a job analysis: a) conceptual; b) procedural; and c) analytical. Conceptual decisions as a basis for a credentialing examination is intended to allow for development of a "test blueprint." Procedural decisions include research methodology, type of examination format, and item generation technique. Analytical decisions involve the statistical and methodological treatment of the list of professional behaviors generated (pp.5-6).

So, job analysis is not directly applied to the individual applicant for certification, but to a large group of practicing professionals. It is the precursor to assessment of certificants and, indeed, essential for logical application of certification criteria.

Continuing Training

Continuing training is an ongoing assessment process that begins, for certification purposes, after credentialing is achieved. Most certifying boards require continuing education as a part of recertification. Some require both continuing education and re-examination periodically. The NBCC requires twenty clock hours of continuing education per year over each five year certification period. All certificants must attest to continuing their training.and submit to random inspection.

Recommendations

Every national program certifying counselors uses multiple-choice examinations as part of the application requirement. While this method can assess information retention readily, it does not lend itself to measuring counseling skills and application of theory to skills. Recent revisions of the National Counselor Examination for Licensure and Certification (NCE) have included more applied items. Future modifications should include methodologies that assess skills better. Tape simulations, computer applications, branching answer format, in vivo review, and case scenario models all may be included in future revision. These modifications, of course, have expense implications, which has been the major force in retention of multiple choice formats in counselor certification.

In an emerging profession such as counseling, an examination which is not undergoing change will soon be obsolete. Monitoring professional practice, research, and literature, as well as advances in examination development and theory are essential to a good assessment program.

The Clinical Mental Health Counselor Academy of the NBCC has always required a tape sample of counseling with a current counselee. This method requires extraordinary time expenditure by applicants for certification as well as tape reviewers. Each tape is reviewed by clinical counselors to assure clinical counseling skills. Clearly this process demands the most scrutiny of reliability (interrater in this case) of all NBCC processes. Ongoing reliability checks of tape review processes are a must. More research will no doubt help delineate better methods of judging tape samples.

Since NBCC has been gathering data on counselor behavior and examination statistics for over twelve years, the time has come to begin releasing these assessment data for use by those with interest in the profession. Such a process is now occurring beginning with the release of all data regarding the most recent and comprehensive job analysis performed within the counseling profession.

Requiring supervision for certification continues to generate a need for better definitions of supervision and qualification of supervisors. In a profession depending upon performance, supervision of pre-service and in-service counseling is essential. Not only will standards need to be developed further but some more quantifiable measures of supervision must emerge.

Summary

While counseling is an emerging profession, the NBCC has kept pace with national mandates for state-of-the-art assessment techniques. Present methods are constantly being modified in light of assessment advancements. Use of presently unreported data my lead to further positive steps in selecting certificants.

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The Status and Scope of Faculty Evaluation

by Tronie Rifkin

Ever since the 1970s when faculty evaluation in the community college first became an issue of discussion and research, there has yet to develop a clear faculty evaluation theory. In spite of the many programs and the extensive research on performance appraisal, few community colleges have effectively come to terms with this difficult task. In fact, in the last 10 years research focused on faculty evaluation practices at two-year colleges has been limited.

This digest examines the issues surrounding faculty evaluation in community colleges. It focuses on the controversy over the purpose of faculty evaluation, who is doing the evaluation, and the problems faculty evaluation programs face.

Can Faculty Evaluation Be Both Formative and Summative?

One of the main obstacles to effective faculty evaluation has been the inability of community college practitioners to reach consensus on the intended purposes of faculty evaluation programs. Viewed broadly, evaluation of faculty is the gathering of information for understanding and improving performance as well as judging its quality. Smith (1983) notes that The Southern Regional Education Board, in a regional survey of faculty evaluation practices in 1976, reduced faculty evaluation to two purposes. On one hand, faculty evaluation has a formative purpose—the results are used to support faculty development, growth, and self-improvement. On the other hand, faculty evaluation has a summative purpose—the results are used to make personnel decisions on tenure, promotion, reappointment, and salary. Since the 1970s, there has been debate over whether an evaluation system can be both formative and summative, and still be effective.

Early on, one side of the debate demanded that evaluation for faculty growth be kept separate from evaluations for promotion and retention (Cohen 1974; Buchanan, 1974). While many of the faculty evaluation models that have been developed often emphasize this separation, early writers on the subject (Mark, 1977; Miller, 1972) already had observed that no evaluation programs adequately outlined how these two purposes could be separated.

The inability to devise faculty evaluation programs that separate formative and summative purposes has fueled the argument that supports the incorporation of both purposes into the evaluation process. Results of research on post-tenure faculty evaluation in community colleges in the north central United States conducted by Licata and Andrews (1990, 1991, 1992) has provided support to this side of the debate. The majority of community college faculty and administrators surveyed identified faculty development as the primary purpose of evaluation, with the provision of information on promotion, retention, dismissal, and normal salary increments as a secondary purpose. Licata and Andrews assert that aligned identification of primary and secondary purposes suggests "that institutions find a way to join both formative and summative results into the faculty evaluation plan" (1992, p. 55).

Obviously, the argument for the incorporation of both purposes is still not at all clear. Some studies have found that perceptions of what is considered to be the ideal methods and purposes of faculty evaluation may differ from perceptions of how evaluations are actually applied in practice. For example, Young and Gwalamubisi (1986) reported results similar to Licata and Andrews in that both faculty and administrators perceived improving instruction as the ideal practice and specific purpose of faculty evaluation. However, faculty and administrators differed significantly on the extent to which they perceived faculty evaluation was really used for administrative decision-making, instructional quality, and reporting to external agencies. Even though formative evaluation is considered a primary purpose of faculty evaluation among faculty and administrators, research suggests perceptions of how the results are used interferes with the overall success of evaluation systems that attempt to incorporate both purposes.

Who Is Doing the Evaluating?

One of the few points of agreement concerning faculty evaluation among community college practitioners is the need for multiple sources of input on individual faculty members. But a matter of debate concerns which sources provide the best results and in what combinations. A comprehensive list of eight methods of faculty evaluation were identified by Young and Gwalamubisi (1986): student ratings of instructors, peer judgment, self-evaluation, administrator observation of faculty, administrator judgment, evidence of student achievement, alumni evaluations, and instructor performance tests.

Student evaluation of teaching is the most common form of evaluation; Seldin (1984) found that administrators utilized student-rating data in two-thirds of 616 institutions surveyed. However, it is also the method that raises the most concerns. Cashin (1983) notes some of the general problems with student evaluations of faculty: over-interpretation, only one aspect of teaching reflected in the data, students not equipped to judge some aspects of teaching, and concerns for reliability and validity.

Evaluation by peers and administrators has received less attention than evaluation by students. Peer evaluation focuses on knowledge of subject matter, commitment to

teaching, or the qualities of good teaching. Colleagues can also judge the course design and instructional materials of a particular instructor. Centra (1979) estimated that 27 percent of the two-year colleges use colleague evaluations to formally assess at least one-half of their faculty while 34 percent make no use of colleague evaluations.

Administrators ultimately play the major role in evaluation, but from a faculty perspective there is a concern with that role and the possible misuse of power (Cherry, Grant, & Kalinos, 1988). Evaluation by administrators is here to stay and as a consequence the contention between faculty and administrators over all aspects of the evaluation process is not likely to disappear. However, there is room for creative alternatives that will lessen the conflict. For example, the teaching portfolio offers an excellent alternative means of evaluating faculty that requires collaboration from peers and department chairs (Centra, 1993). With the portfolio, the chair and instructor must identify the goals of the evaluation, and carefully delineate the expectations for acceptable performance. Once these materials are prepared, a clear time table and the expected outcomes must be established.

What Problems Do Faculty Evaluation Programs Face?

Arreola (1983) found two major problems in establishing successful faculty evaluation programs: (1) the administration is not interested in whether or not they succeed, and (2) the faculty are resistant. According to Arreola faculty resistance to being evaluated is attributable to "a resentment of the implied assumption that faculty may be incompetent in their subject area, suspicion that they will be evaluated by unqualified people, and an anxiety that they will be held accountable for performance in an area in which they may have little or no training" (p. 86).

Often, faculty suspicion, fear, and concern about the evaluation process is based on their perceptions that in fact it is used for the purposes of making decisions about tenure, promotion, and dismissal (Mark, 1982). Says Mark, "What is called development, growth, and self-improvement today becomes the means by which decisions for institutional personnel management purposes are made tomorrow. Faculties become wary and suspicious of this double message involved in the evaluation system" (p. 168).

Conclusion

It is evident from the literature on faculty evaluation at community colleges that there are a number of different methods and approaches to faculty evaluation at community colleges. Despite the lack of clarity as to the goals of evaluation and their application, and who should be involved in the evaluation process, community college practitioners agree that evaluation is a necessary part of teaching and learning. They also agree in principal that evaluation should help instructors grow professionally, but are unclear as to how to achieve that goal.

One conclusion to be drawn is that an ideal system of faculty evaluation cannot be normative. A non-normative, or criterion referenced system, would appraise faculty members according to a set of professional standards rather than by comparing them to other employees. The thrust of the evaluation would encourage professional development rather than discourage it. In any case, there is a need for research to further address the development of responsible and effective faculty evaluation systems that consider enhancing the growth of the faculty member as an individual.

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Taking Teaching Seriously

Meeting the Challenge of Instructional Improvement

Michael B. Paulsen and Kenneth A. Feldman

"Taking Teaching Seriously" is drawn from a celebrated address by K. Patricia Cross at the 1986 AAHE National Conference on Higher Education in Washington, D.C. In her address, Cross emphasized the importance of efforts to increase the quality of college teaching. This report uses a model that views various strategies for improving instruction as helping motivate individual faculty members to improve their teaching by changing (and maintaining) certain of their instructional attitudes and practices (through the process of unfreezing, changing, and refreezing certain attitudes and behaviors). This model focuses on the varieties of informative feedback–from such sources as colleagues and consultants, chairs, students, and oneself–that are facilitated by a supportive teaching culture and that drive the process of instructional improvement.

What Are the Primary Characteristics of a Supportive Teaching Culture?

The presence of a culture that is supportive of teaching clearly enhances the effectiveness of all strategies for improving instruction. The literature consistently identifies the following characteristics of cultures that support teaching and its improvement: unambiguous commitment to and support of teaching and its improvement from senior administrators; shared values about the importance of teaching between administrators and faculty, with widespread involvement of faculty in planning and implementing activities and programs to improve teaching, thus creating a sense of faculty "ownership" of these activities and programs; the presence of effective department chairs who are supportive of teaching and its improvement; frequent interaction and collaboration among faculty and a sense of community among faculty regarding teaching-related issues; a faculty development program or campus teaching center; a broad, expanded view of scholarship and scholarly activities; decisions about tenure and promotion connected to rigorous evaluations of teaching; and a requirement that some demonstration of effective teaching be part of interviewing and hiring new faculty (Massy, Wilger, and Colbeck 1994; Rice and Austin 1990).

What Strategies for Improving Instruction Help Teachers Provide Informative Feedback to Themselves?

Because college teachers often have a strong need to seek self-determined competence by continuously scanning the instructional environment for informative feedback, their behavior can be examined and the source of changes in their behavior understood by viewing them as "reflective practitioners." Activities that constitute such practice-centered inquiry have been shown to be useful strategies for improving instruction (Amundsen, Gryspeerdt, and Moxness 1993). The ultimate foundation of all reflective practice or self-reflection is the ability and opportunity to engage in self-evaluation or self-assessment. Two common methods of collecting self-evaluation feedback at universities involve the use of self-rating forms and self-reports. At some colleges and universities, for example, faculty are asked to complete the same (or slightly reworded) questionnaires to evaluate teaching as their students. This procedure enables faculty to analyze their teaching and to reflect on their teaching behaviors along the same dimensions their students use to evaluate them. A second method, self-reports completed by college professors, has traditionally been limited to vitae and reports of activities; recently, however, the idea of self-reports has been conceptually and functionally expanded into a medium, compendium, and showcase for reflective practice–namely, the teaching portfolio, which is essentially an elaborate and reflective form of self-evaluation (Edgerton, Hutchings, and Quinlan 1991).

How Can Students Make Their Voices Heard?

Students hardly need to be "silent partners" in the enterprise of improving teaching. One way their voices can be heard is through their completing teacher and course evaluations. Research has shown persistently that feedback from student ratings is of value in improving teaching, particularly if this feedback is accompanied by the teacher's consulting with a colleague or a teaching consultant (L'Hommedieu, Menges, and Brinko 1990). Several different ways of using student interviews for giving feedback to teachers have also been reported as successful strategies for improving instruction, including group discussions, small-group instructional diagnosis, the class interview, and quality control circles. A particularly distinctive way of receiving feedback from students is for a professor to invite students into his or her classroom who are not "official" members of the class but who are trained in classroom observation. A student-visitor program primarily provides confidential observations to increase the instructor's effectiveness in helping students learn. Another strategy for "listening" to students has been called "classroom assessment," which consists of a wide range of methods college teachers can use to obtain useful feedback on what, how much, and how well their students are learning (Angelo and Cross 1993).

How Can Colleagues, Consultants, and Chairs Be Helpful in Improving Teaching?

Faculty seminars, workshops, and colloquia about teaching are traditional (but still effective) practices for encouraging interaction and collaboration among faculty regarding teaching. Recent developments in a variety of areas–action science, reflective practice, adult learning theory, and the like–have encouraged an expanded range of strategies using colleagues to help improve teaching. One important set of activities, programs, and projects

in this expansion is the renewed use of team teaching (Baldwin and Austin 1995). Faculty collaboration through team teaching benefits professors by developing their teaching abilities, intellectually stimulating them, engaging them as self-directed learners, and more closely connecting them to the university or college as a community. A second set of programs and practices is collegial coaching (Keig and Waggoner 1994). Two primary activities involved in collegial coaching are observation of classroom teaching and instructional consultation (the review of course materials and discussions about classroom practices). Based on descriptions and analyses of coaching projects at colleges and universities, effective programs have all or most of the following characteristics: an underlying philosophy; a procedure for selecting participants; a training program for collegial coaches; a preobservation conference; one or more classroom visits and observations; a postobservation conference; and a chance for participants to evaluate their effectiveness.

Many of the informal processes of consultation carried out in collegial coaching projects have been formalized in a comprehensive set of more routine services provided by the trained consultants who constitute the staff of campus teaching centers. Instructional consultation is usually based on a comprehensive model that includes data collection and analysis by the consultant, strategies for improvement worked out between the consultant and the teacher, and evaluation (Lewis and Povlacs 1988). Consultation improves teaching primarily through the use of effective practices in giving feedback (often associated with student ratings and direct observation or videotapes of classroom teaching) and through the various interpersonal roles assumed by consultants.

Department chairs are also important to the improvement of teaching. One way they help is by providing support–financial and otherwise–to ongoing formal and informal attempts to improve teaching. They are invaluable in defining faculty development and instructional improvement (as distinct from faculty evaluation) as an important departmental activity. They can plan programs for the department, such as pedagogical colloquia, that help improve teaching. They can even intervene more directly by following steps similar to those used in instructional consultation (Creswell, Wheeler, Seagren, Egly, and Beyer 1990).

How Can the Special Needs for Improving the Teaching of New and Junior Faculty Be Met?

Because new faculty members share common concerns about such matters as workload and stress from multiple demands, uncertainty about what is expected of them, a desire for collegial support, and a need to develop teaching skills, a strong argument can be made for supplementing traditional, individual approaches of socialization that help them adjust to their new environment with a collective approach that address these common concerns. Workshops and "substantial" orientation programs for new faculty members that offer concrete assistance with the development of teaching skills and with various common problems are being used successfully in a variety of colleges and universities. In addition, formal mentoring programs for new and junior faculty are also being used at different schools to give concrete assistance with the development of teaching skills, to address professional and personal concerns, and, in general, to counter the vagaries of the usually informal socialization of new college teachers (Boice 1992; Sorcinelli and Austin 1992).

What Can Colleges Do to Improve Teaching?

Several approaches, used in concert, can be used to improve instruction in colleges and universities. Ways need to be found to "unfreeze" certain attitudes and behaviors of some teachers that prevent them from improving their teaching. Supportive teaching cultures on campus must be strengthened, especially at those colleges where such cultures are subsidiary to more dominant cultures. More teachers need to be given guided experience in being "reflective practitioners." Students should be treated (and sought out) as active partners in the improvement of instruction. Formal and informal collaboration among colleagues should be rewarded. Chairs need to be encouraged to offer their invaluable support through their creation of an environment conducive to effective teaching. Trained consultants, often though not invariably associated with a campus teaching center, should be recognized as the experts they are in instructional improvement and their activities facilitated. And new and junior faculty must be encouraged and helped with their teaching through programs recognizing their special needs and talents.

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This report was prepared by the ERIC Clearinghouse on Higher Education in cooperation with the Association for the Study of Higher Education and published by the Graduate School of Education and Human Development at the George Washington University. Each report is a definitive review of the literature and institutional practice on a single critical issue. Many administrators subscribe to the series and circulate reports to staff and faculty committees with responsibility in a report's topic area.

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DIGEST

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URBAN TEACHERS AND COLLABORATIVE SCHOOL-LINKED SERVICES

Increasingly, teachers in urban schools across the United States are finding themselves at the center of a vast web of interconnected social problems. Far from being able to concentrate on the singular task of educating their students, teachers are also being called upon to act as brokers for a diverse array of social and health services—services which, while not traditionally within their purview, can help ameliorate the problems placing students at risk of educational failure.

While urban teachers obviously cannot provide these services themselves, they can play a major role in building and maintaining the partnerships and linkages with the outside social service agencies that are able to deliver them, and can facilitate use of these services by students and their families (Council of Chief State School Officers, 1989). In fact, the school site is increasingly the location of choice for social service provision, in effect functioning as a centralized clearinghouse for a set of "school-linked" services.

This digest provides some guidelines for developing partnerships between schools and outside service agencies, and suggests some of the roles that teachers can play in the process.

Common School-Linked Programs

Many types of school-linked programs are currently in operation. In a recent review of 55 collaborative programs, for instance, Wang, Haertel, and Walberg (in press) outline the following common programs:

- ***parent and family programs***, including parent education, school readiness, and life skills programs;
- ***programs for sexually active teens***, including teen pregnancy and teen parenting programs;
- ***dropout prevention programs***;
- ***substance abuse programs***, for both alcohol and drugs; and
- ***integrated services programs***, combining a wide range of services—including health, vocational, educational, and other social services—into a single program.

Not surprisingly, given such range, many disparate service providers have joined with the schools in these programs. It is not uncommon, for instance, to find representatives of social service agencies, health and mental health agencies, churches, welfare agencies, universities, or senior citizens groups present on school campuses as participants in a school-linked program.

Developing a Program

Levels of Collaboration

Although collaborations between schools and service providers most often begin at the highest levels of administration, the successful provision of services depends not only upon administrators, but also on the school people in direct contact with students, including classroom teachers. Bruner (1991) outlines four levels of collaboration necessary for a successful program:

- ***Collaboration between administrators.*** This kind of top-level collaboration provides the necessary institutional support for an effective joint program, and often supplies the impetus for identifying student needs.
- ***Collaboration between social service providers and school personnel,*** including teachers. In a real sense, successful services are provided not by agencies but by individuals; these professionals are responsible for making the day-to-day work of the collaboration function smoothly, and they should also play a major role in designing and planning the programs.
- ***Collaboration between members of a participating agency.*** Both school personnel and service providers must be able to work successfully with other representatives of their own agencies. This can help ensure a collegial atmosphere in a collaboration.
- ***Collaboration between teachers, social service providers, and families.*** This is the level at which services are actually delivered. Good collaborative programs emphasize the point of contact between providers and clients; they adequately train providers, as well as teachers, and take steps to free them from excessive paperwork. In most schools, the teachers already have established contact with parents; they can thus serve as intermediaries, both helping families get the services they need and helping providers make contact with the families who need their services.

Establishing the Collaboration

School administrators must go out of their way to find appropriate service providers who are willing to become partners. Liontos (1991) offers a number of recommendations. Educators should actively:

- reach out to the community rather than wait for social service agencies to contact them;
- participate in community groups and activities, taking on the role of community leaders; and
- seek out information on the activities of local service agencies, setting up one-on-one and group meetings, and drawing upon the knowledge that their classroom teachers already possess about local services.

In addition, Liontos suggests, once initial contact has been established, administrators should:

- learn as much as possible about the operations of service providers—including the ways in which their decision-making process works—so that they may work with them more effectively;

- elicit the active input of the service providers, including their criticisms of school operations; and
- be willing both to take risks and to make compromises in the interest of a successful collaboration, thus making the service providers full partners in the program.

Defining Needs

Each school is part of a unique community with a singular mix of needs and problems; in urban areas in particular, this mix may be made more complex by the growing ethnic and linguistic diversity of the population (Chang, 1993). Thus, collaborative programs must make customized responses to the actual needs of local students and families (Levy & Shepardson, 1992). As those who come into the closest daily contact with students, teachers have both the fullest vision of their students' needs, and a natural stake in designing an effective collaborative service program. Thus, they should take an active and early role in the planning process, both to ensure that the students' most essential needs are addressed and that other planners do not lose sight of the school's primary mission: the education of students (Jehl & Kirst, 1993). For example, they can work closely with parents and other community representatives, making sure that the ways in which services are offered to students take into account the community cultural and linguistic makeup (Chang, 1993).

Defining Goals

Most traditional social service programs are crisis-oriented; they provide valuable services in response to emergencies, but do little to meet needs in an ongoing and pro-active way (Melaville & Blank, 1991). Key to an effective school-linked collaboration, however, is the establishment of clearly stated and measurable goals and desired outcomes at the outset, in order to identify and respond to student needs before they reach the crisis stage (Bruner, 1991). In addition, since most teachers have traditionally dealt with service providers only in times of crisis, program goals should include methods of enhancing the ongoing communication between teachers and service providers, thus ensuring that service providers can draw upon the expertise and knowledge of teachers, and that teachers have a clear understanding of what services are available (Jehl & Kirst, 1993).

Maintaining the Collaboration

In addition to making a program operate pro-actively, clearly stated goals can help keep the collaboration itself functioning effectively through specific guidelines for the ongoing roles and activities of each participant (Bruner, 1991). Goals can also go far to establish firm accountability for each participant, thus helping to cultivate a shared vision for the project (Melaville & Blank, 1991).

In any strong project, both formal and informal structures for ongoing communication between partners should be in place, as part of the program's daily operations and to allow partners to share information about the changing needs of their community (Liontos, 1990; Melaville & Blank, 1991).

Conclusion

Teachers are the primary service providers for the children in their classrooms. As such, they can be the force that make school-linked programs work, acting not only as the essential channels of communication between service providers and local communities, but also as full and committed participants in the daily delivery of social services. The full participation of teachers can do much to fulfill the hopes raised by the implementation of school-linked programs.

— Gary Burnett

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USING PERFORMANCE ASSESSMENT IN OUTCOMES-BASED ACCOUNTABILITY SYSTEMS

Margaret J. McLaughlin and Sandra Hopfengardner Warren

Outcomes-based accountability ensures that the educational system is responsible for student attainment of specific learner outcomes. Increasingly, outcomes-based accountability systems are using results of both traditional assessments, such as norm-referenced tests, and authentic or performance assessments in an effort to measure broad domains of student knowledge.

Performance Assessment and Students with Disabilities

Performance assessments can offer a number of benefits over the use of traditional standardized assessments for students with disabilities. The most important benefit is the potential for linking instruction and assessment: As the student completes the assessment task, the teacher uses the data to improve instruction.

To ensure success of performance assessments in an outcomes-based system, the following issues must be addressed for students with disabilities:

1. *Defining the Outcomes.* Assessment programs are constructed to measure progress toward valued educational goals. When outcome frameworks are defined too narrowly (e.g., academic content domains) and neglect other valued areas (e.g., vocational skills, personal management, social skills, and communication), the outcomes may not reflect all of the skills that are valued for students with disabilities. Assessment tasks need to be relevant to the students' program goals.
2. *Developing Performance Standards.* Standards are benchmarks against which student performance may be compared. A critical decision in designing an assessment system is whether students will be compared to themselves to determine change in their performance over time, or whether they will be compared to fixed standards of performance. Many students with disabilities cannot meet absolute standards, particularly in academic areas. When participation in the assessment program is linked to high school diplomas, students with disabilities may be at a particular disadvantage.
3. *Assessment Accommodations.* Students with disabilities may benefit from accommodations made during assessment:
   - Additional time to complete the task.
   - Alternative testing locations.
   - Alternative means of administration (e.g., reading, interpretation, Braille).
   - Alternative supplies or equipment (e.g., computers).
   - Alternative forms of assessment.
4. *Scoring.* When assessment results must be reported in the aggregate and when results matter, such as for diplomas, scoring reliability becomes critical. Rigorous scoring is as necessary in alternative assessments as in traditional assessments.

Performance Assessments in Action: Descriptions of Selected States and Districts

A number of states and local school districts have adopted performance assessments in their outcomes-based systems. Many of these sites have included students with disabilities in the assessments.

Kentucky: The Kentucky Educational Reform Act outlines six performance goals that all students are expected to attain upon graduation from Kentucky schools:

- Communication and math.
- Core concepts from the sciences, arts, humanities, social studies, and practical living studies.
- Self-sufficiency.
- Membership in family, work group, or community.
- Thinking and problem-solving.
- Connecting and integrating knowledge.

Students are also expected to have mastered 75 outcomes in specific academic content areas.

Performance assessments include:

- Portfolios in writing and mathematics for all students in grades 4, 8, and 12.
- Performance events for all students in grades 4, 8, and 12, with focus on mathematics, science, social studies, arts and humanities, and vocational education/practical living.
- Transitional assessments (open-ended and multiple-choice questions) for all students in grades 4, 8, and 12, with focus on mathematics, science, social studies, arts and humanities, and vocational education/practical living. Alternative portfolios are developed by students with severe disabilities in grades 4, 8, and 12.

All students are required to participate in the transitional assessments or alternative portfolios unless a physician provides a statement documenting significant negative impact on the student's health as a result of participating.

Maryland: The Maryland School Performance Program (MSPP) was developed as a comprehensive student outcomes accountability system. Reflecting state-level goals and strategies, student learning outcomes have been developed in the areas of reading and writing, mathematics, social studies, and science.

Assessment of student outcomes within the MSSP includes:

- Norm-referenced tests (Comprehensive Tests of Basic Skills).
- Criterion-referenced performance assessments (Maryland School Performance Assessment Program).
- Maryland Functional Tests, criterion-referenced minimal competency tests.

An alternative performance assessment is currently being proposed for students with significant cognitive disabilities.

Students with disabilities may be exempted by their IEP team from participation in any of the three assessments.

Vermont: The Vermont Assessment Program was implemented statewide during the 1991-1992 school year. The program employs both standardized assessments and portfolios to collect information about the performance of 4th and 8th graders in mathematics and writing:

- The standardized assessment used is the Uniform Assessment, which includes two 40-item multiple choice tests and a single on-demand writing task that the student must complete independently.
- Each student's portfolio is expected to include 10-20 items. From these, students select 5 to 7 "best pieces" to be scored.

School-based staffing teams determine whether or not students with disabilities are eligible for exemption from the portfolio development and assessments. Exempted students may build portfolios that do not conform to the state requirements for use in instruction.

What Are the Implications of Using Performance Assessments for Accountability?

There are a number of issues that need to be addressed when using performance assessment as part of large scale assessment programs:

- Dealing with increased program costs.
- Ensuring scoring reliability and establishing fair, yet flexible, scoring rubrics.
- Setting performance standards.
- Specifying the outcomes and indicators.
- Making certain that the assessments provide many opportunities for students to demonstrate proficiency in an outcome area.
- Using the assessment results to influence instruction either individually or at the school level.

To address these issues, it is important to include both general and special education teachers in designing and implementing the assessment program.

What Are the Considerations for Including Students with Disabilities in Outcomes-Based Accountability Systems?

Despite the strong impetus to include students with disabilities in assessments, there are still major considerations that must be addressed:

1. Outcomes-based systems present special educators with a difficult conceptual switch from believing that each student with a disability should have individualized outcomes to accepting the notion of a common set of outcomes across students.
2. There is still ambiguity among assessment experts regarding how much accommodation should be provided within an assessment program.
3. When one set of scoring standards is defined for all students, with no modifications made for students with disabilities, students with disabilities may be denied diplomas or otherwise penalized.
4. When results are used for high stakes accountability, there may be greater pressure to exempt students with disabilities. Once the decision to exempt students with disabilities is made, there may also be pressure to identify more students as having disabilities in order to exempt more students from the assessments.

Strategies to Support Using Performance Assessment in Outcomes-Based Systems

When using performance assessments in outcomes-based systems, educators can increase the potential for success of students with disabilities by considering the following:

- Identify meaningful outcomes.
- Define performance standards in sufficiently broad terms or in ways that emphasize growth.
- Create enough flexibility in the assessment system to accommodate individual student needs.
- Employ multiple data-gathering strategies including on-demand assessments, examples of student work, and teacher judgments.

Derived from McLaughlin, M. J. & Warren, S. H. (1994). *Performance Assessment and Students with Disabilities: Usage in Outcomes-Based Accountability Systems*. Reston, VA: The Council for Exceptional Children. Product #P5081.

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Goal 5: Mathematics and Science

By the year 2000, United States students will be first in the world in mathematics and science achievement.

Objectives:

- Mathematics and science education, including the metric system of measurement, will be strengthened throughout the system, especially in the early grades;
- The number of teachers with a substantive background in mathematics and science, including the metric system of measurement, will increase by 50 percent; and
- The number of United States undergraduate and graduate students, especially women and minorities, who complete degrees in mathematics, science, and engineering will increase significantly.

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African Americans in Science: Books for Young Readers

David L. Haury

February 1995

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

American culture is multi-faceted and complex, an elaborate mosaic of ethnic groups, diverse heritages, interwoven traditions, and multiple perspectives. There is likely no region on earth with more reasons or resources to embrace and celebrate human diversity than North America. Unfortunately, the potential goes unrealized, with people of color woefully underrepresented in many professions, particularly those related to the sciences and allied technical fields. An ever-expanding gap, for example, continues to separate the degrees of participation in science programs and careers among European Americans and African Americans (Danek, Calbert, & Chubin, 1994).

There is no single explanation for the gap, but two factors are surely part of the equation: (a) African Americans experience more obstacles along the path to careers in science (Malcom, 1990; Pearson & Bechtel, 1989), and (b) African Americans have fewer opportunities to "see" people like themselves in the sciences. As Pearson (1989, p.140) has mentioned, "many black students...who may have an interest in science and technical careers are first-generation college students. Thus, they may seldom have had the opportunity to meet and be exposed to blacks who work in these fields." There is, then, an ongoing need to counteract the twin forces of racism in society and the self-limiting aspirations acquired among minority populations. As Ford (1994) has said, "Ultimately racism cannot survive where differences and diversity are tolerated, accepted, welcomed, honored, and celebrated."

This listing of books and other resources is intended for readers of all cultural and ethnic identities. The readings present a rich variety of contributions and achievements made by African American scientists, engineers, and inventors. Stories and biographies from these sources can be used to facilitate the celebration of diversity in the sciences among all readers as well as fuel the fires of imagination among young African American students. The various accounts highlight the considerable contributions of African Americans to the ongoing development of science and engineering within the fabric of American society. Parents, teachers, and other education practitioners are encouraged to use this list to provide an enriched reading environment for young people.

This listing is largely based on two documents produced by the Library of Congress: *African American Science Books for Younger Readers*, compiled by Vivian Bellinger-Biggers (*LC Science Tracer Bullet 94-4*), and *African-American Women in the Sciences and Related Disciplines*, compiled by Gail T. Austin (*LC Science Tracer Bullet 93-4*). These and other *LC Science Tracer Bullets* are available free of charge from the Science Reference Section, Library of Congress, 10 First Street, SE, Washington, DC, 20540-5580.

References Cited

Danek, J. G., Calbert, R., & Chubin, D. E. (February, 1994). NSF's programmatic reform: The catalyst for systemic change. Paper presented at an invitational conference sponsored by the National Science Foundation, "Building the System: Making Science Education Work," Washington, DC.

Ford, C. W. (1994). *We can all get along*. New York: Dell.

Malcom, S. M. (1990). Reclaiming our past. *Journal of Negro Education, 59*(3), 246-59.

Pearson, W., Jr. (1989). The future of blacks in science: Summary and Recommendations. In W. Pearson, Jr. & H. K. Bechtel (Eds.), *Blacks, science, and American education* (pp. 137-152). New Brunswick, NJ: Rutgers University Press

[ED 325 353]

Pearson, W., Jr., & Bechtel, H. K. (Eds.). (1989). *Blacks, science, and American education*. New Brunswick, NJ: Rutgers University Press.

[ED 325 353]

Collective Biographies

African-American scientists. McKissack, P., & McKissack, F. Brookfield, CT: Millbrook Press, 1994. 96 p.

Q141.M36 1994

Examines the lives and achievements of African American scientists from colonial days to the present.

Against all opposition: Black explorers in America. Haskins, J. New York: Walker, 1992. 86 p. Bibliography: p. 83-84. E185.96. H353 1992

American Black scientists and inventors. Washington, DC: National Science Teachers Association, 1975. 79 p.

Q141.A46

Contents: Jenkins, E.S. Ernest E. Just, cell physiologist; Hudson, G.H. Garrett Augustus Morgan: Big Chief Mason, ingenious American; Ryder, E.C. George Washington Carver, agricultural scientist; Jackson, W.S. Benjamin Banneker, Black astronomer; Jenkins, E.S. Percy L. Julian, soybean chemist; Jackson, W.S. Granville T. Woods, railway communications wizard; Hudson, G.H. Charles Richard Drew, blood plasma pioneer; Hudson, G.H. Charles Henry Turner, scientist, teacher, author, humanitarian; Hudson, G.H. Matthew A. Henson, famous explorer; Jenkins, E.S. Leon Roddy, spider man; Ryder, E.C. Elijah McCoy, inventor; and Ryder, E.C. Daniel Hale Williams, pioneer heart surgeon. Includes bibliographies.

An African-American Bibliography: Science, medicine, and allied fields. Selected resources from the collections of the New York State Library. Strasser, T. C. Albany, NY: New York State Library, 1991

[ED 332 713]

This bibliography was issued in honor of both Black History Month and Inventors Day in February 1991. It

focuses on the contributions of African Americans in the areas of science, technology, medicine, and allied fields such as dentistry and nursing. The materials cited emphasize the accomplishments of individuals from all parts of the United States, in all periods, and from all backgrounds. The bibliography includes books, selected periodical articles, patents, and other materials.

Black Americans in aviation. Peters, R. E., & Arnold, C. M. San Diego, CA: Neyenesch Printers, 1975. 85 p. Bibliography: p. 83.

TI553.P47

Blacks in science: Astrophysicist to zoologist. Carwell, H. Hicksville, NY: Exposition Press, 1977. 95 p. Bibliography: p. 93-94.

Q141.C23

Black inventors of America. Burt, M. Portland, OR: National Book Co., 1969. 143 p.

T39.B87 1969

Black mathematicians and their works. Edited by V. K. Newell and others. Ardmore, PA: Dorrance, 1980. 327 p. Includes Bibliographies.

QA28.B58

Black pioneers of science and invention Haber, L. San Diego: Harcourt Brace Jovanovich, 1991, 264 p. Bibliography: p. 245-254.

Q141.H2 1991

(Reprint. Originally published, New York, Harcourt, Brace & World, 1970.)

Black scientists. Yount, L. New York: Facts on File, 1991. 111 p. Bibliography: p. 106.

Q141.Y68 1991

Created equal: the lives and ideas of Black American innovators. Brodie, J. M. New York: W. Morrow, 1993. 208 p.

E185.96.B835 1993

Creativity and inventions: The genius of Afro-Americans and women in the United States and their patents. Ives, P. C. Arlington, VA: Research Unlimited, 1987. 88 p. Bibliography: p. 81-86.

T21.184 1987

11 African-American doctors. Rev. and expanded ed. Hayden, R. C. Frederick, MD: Twenty-First Century Books, 1992. 206 p.

R695.H39 1992

The hidden contributors: Black scientists and inventors in America. Klein, A. E. Garden City, NY: Doubleday, 1971. 203 p.

E185.8.K56

9 African-American inventors. Hayden, R. C. Frederick, MD: Twenty-First Century Books, 1992. 169 p.

T39.H39 1992

Outward dreams: Black inventors and their inventions. Haskins, J. New York: Walker, 1991. 101 p. Bibliography: p. 97-98.

T39.H37 1991

Profiles of pioneer women scientists. O'Hern, E. M. Washington, Acropolis Books, 1985. 264 p. Bibliography: p. 235-250.

R153.O36 1985

The real McCoy: African-American invention and innovation, 1619-1930. James, P. P. Washington, Published for the Anacostia Museum of the Smithsonian Institution by the Smithsonian Institution Press, 1989. 110 p. Bibliography: p. 103-106.

T39.J28 1989

A Salute to Black scientists and inventors. Chicago: Empak Enterprises, 1985. 28 p. (An Empak "Black history" publication series, v.2)

Q141.S285 1985

7 African-American scientists. Rev. and expanded ed. Hayden, R. C. Frederick, MD: Twenty-First Century Books, 1992. 171 p.

Q141.H37 1992

Individual Biographies

Benjamin Banneker. Conley, K. New York: Chelsea House Publishers, 1989. 109 p. Bibliography: p. 106.

QB36.B22C66 1989

Chronicles the life of an 18th-century Black tobacco farmer who taught himself mathematics, astronomy, and clockmaking, became famous for his almanacs, and participated in the original survey of Washington, D.C.

Charles Drew. Mahone-Lonesome, R.. New York: Chelsea House Publishers, 1990. 109 p.

RD27.35.D74M34 1990

A biography of the surgeon who conducted research on the properties and preservation of blood plasma and was a leader in establishing blood banks.

Charles Richard Drew, M.D. Wolfe. R. New York: F. Watts, 1991. 64 p. Bibliography: p. 62.

RD27.35.D74W65 1991

A bibliography of the noted physician, focusing on his discovery of methods for separating plasma from blood.

George Washington Carver. Gray, J. M. Englewood Cliffs, NJ: Silver Burdett Press, 1991. 138 p. Bibliography: p. 127-129.

S417.C3G73 1990

Describes the life and accomplishments of the former slave who became a scientist and devoted his career to helping the South improve its agriculture.

Gifted hands. Carson, B., & Murphey, C. B. Washington, DC: Review and Herald Pub. Association, 1990. 232 p.

RD592.9.C37A3 1990b

The chief of pediatric neurosurgery at Johns Hopkins University hospital tells about his life and some of his cases.

Lewis Howard Latimer. Turner, G. T. Englewood Cliffs, NJ: Silver Burdett Press, 1991. 128 p. Bibliography: p. 113-119.

T40.L37T87 1990

A biography of the African-American inventor who, among other contributions, invented an inexpensive method of manufacturing carbon filaments for electric light bulbs.

The life of Charles Drew. Talmadge, K. S. Frederick, MD: Twenty-First Century Books, 1992. 84 p. Bibliography: p. 83.

RD27.35D74T35 1991

A biography of the Black surgeon who was noted for his research on blood plasma.

Man with a million ideas: Fred Jones, genius/inventor. Ott, V., & Swanson, G. B. Minneapolis: Lerner Publications Co., 1977. 109 p.

T40.J59O87 1977

A biography of Frederick McKinley Jones, the Black engineer and inventor who is credited with many inventions, including refrigeration units for trucks and railroad cars, the portable x-ray unit, and the ticket dispenser.

Mathematician and administrator, Shirley Mathis McBay. Verheyden-Hilliard, M. E. Bethesda, MD: Equity Institute, 1985. 31 p.

QA29M38V47 1985

A brief biography of the woman mathematician who was the first African American to earn a Ph.D. from the University of Georgia.

Matthew Henson. Gilman, M. New York:

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Chelsea House Publishers, 1988. 110 p. Bibliography: p. 108.
G635.H4G55 1988

Follows the life of the Black explorer who accompanied Robert Peary on the expedition to the North Pole

Paul Cuffe. Diamond, A. New York: Chelsea House Publishers, 1989. 111 p. Bibliography: p. 108.
E185.97.C96D53 1989

A biography of the American seaman and merchant who encouraged fellow Blacks to colonize Sierra Leone, sought a stronger legal position for Blacks in America. and was responsible for a Massachusetts law giving Blacks the right to vote.

Queen Bess: daredevil aviator. Rich, D. L. Washington,DC: Smithsonian Institution Press, 1993. 153 p. Bibliography: p. 137-141.
TL540.C646R52 1993

About Bessie Coleman.

The real McCoy: the life of an African-American inventor. Towle, W., Paintings by Wil Clay. New York: Scholastic, 1993. 1 v. (unpaged).
T40M43T68 1993

A biography of Elijah McCoy, the Canadian-born Black American who studied engineering in Scotland and patented over 50 inventions despite the obstacles he faced because of his race.

Ronald McNair. Naden, C. J. New York: Chelsea House, 1990. 109 p. Bibliography: p. 106.
TL789.85M36N34 1990

A biography of the Black astronaut who was a crew member aboard the ill-fated Challenger space shuttle mission that exploded on takeoff in January 1986.

Shoes for everyone: a story about Jan Matzeliger. Mitchell, B. Minneapolis: Carolrhoda Books, 1986. 63 p.
TS990.M335M58 1986

A biography of the half-Dutch/half-Black Surinamese man who, despite the hardships and prejudice he found in his new Massachusetts home, invented a shoe-lasting machine that revolutionized the shoe industry in the late 19th century.

Scientist and administrator, Antoinette Rodez Schiesler. Verheyden-Hilliard, M. E. Bethesda, MD: Equity Institute, 1985. 31 p.
QD22.S34V47 1985

Relates the story of an African American woman who overcame childhood difficulties with mathematics and went on to earn a Ph.D. in chemistry.

Scientist and strategist, June Rooks. Verheyden-Hilliard, M. E. Bethesda, MD: Equity Institute, 1988. 31 p.
Q143.R58V47 1988

A brief biography of June Rooks, a Black woman who contracted polio as a child, struggled against poverty, earned her degree in physics, and went on to become an operations research analyst with the U.S. Navy.

Space challenger: the story of Guion Bluford; an authorized biography. Haskins, J., & Benson, K. Minneapolis: Carolrhoda Books, 1984. 64 p.
TI789.85B58H37 1984

Guy Bluford, the first Black American in space, was a crew member of the space shuttle Challenger on its August 1983 flight.

Stop and go: Garrett Morgan, inventor. Sims, D. J. Los Angeles: Children's Cultu-Lit Book Co., 1980. 32 p.
TE228S56 1980

A brief biography of the inventor of the traffic light and the gas mask.

Sure hands, strong heart: the life of Daniel Hale Williams. Patterson, L. Nashville: Abingdon, 1981. 159 p. Bibliography: p. 157-159.
RD27.35.W54P37

A biography of the Black surgeon who, among other achievements, was the first to perform open heart surgery.

Trailblazer; Negro nurse in the American Red Cross. Pitrone, J. M. New York: Harcourt, Brace & World, 1969. 191 p.
RT37.D3P5

A biography of Frances Reed Elliott Davis whose determination to help relieve the physical pains of her people led her to become the first Black nurse enrolled by the American Red Cross.

Biographical Reference Tools

A Salute to historic Black firsts. Publisher and editor, Richard L. Green. Chicago: Empak Pub. Co., c1989. 32 p. (An Empak "Black history" publication series, v. 7)
E185.96S243 1989

African American biographies: profiles of 558 current men and women. Hawkins, W. L. Jefferson, NC: McFarland, 1992. 490 p.
E185.96.H38 1992

A second volume, profiling 332 contemporaries, is in press.

African American history: four centuries of Black life. Hughes, L., & Meltzer, M. New York: Scholastic, 1990. 312 p.
E185.H83 1990

Revision of *A pictorial history of Black Americans*, 5th ed. (c1983)

Afro-Bets Book of Black heroes from A to Z: an introduction to important Black achievers for young readers. Hudson, W., & V. Wilson Wesley. Orange, N.J., Just Us Books, 1988. 54 p. Bibliography: p. 52.
E185.96.H77 1988

Black history, Black lives: a comprehensive list of Black biographies for young people arranged by birthdate. Ginsberg, Dale Ann. Merion Station, PA: Anndale Books, 1986. 25 p.
Z1361.N39G54 1986

Blacks in science: Ancient and modern. Editor, Ivan Van Sertima. New Brunswick, USA., Transaction Books, 1983. 302 p. (Journal of African civilizations, v. 5, no. 1/2) DT14.J68, v. 5, no. 1/2 Bibliography: p. 295-297.

Blacks in science and medicine. Sammons, V. O. New York: Hemisphere Pub. Corp., 1990. 293 p. Bibliography: P. 261-268
Q141.B58 1990

The Black 100: a ranking of the most influential African-Americans, past and present. Salley, C. Seacaucus, NJ: Carol Pub. Group, 1993. 383 p. Bibliography: p. 374-375.
E185.96S225 1993

Black women in America: An historical encyclopedia. Editor, Darlene Clark Hine. Associate editors, Elsa Barkley Brown, Rosalyn Terborg-Penn. Brooklyn, NY: Carlson Pub., 1993. 2v. (1530 p.)
E185.86B542 1993

See especially entries for aviators, nurses, mathematicians, physicians, and scientists in "Classified list of

biographical entries": v.2, p. 1345-1352. Bibliography: p. 1333-1344.

Chronology of African-American history: significant events and people from 1619 to the present. Hornsby, A. Detroit: Gale Research, 1991. 526 p. Includes bibliographical references.
E185.H64. 1991

Epic lives: one hundred Black women who made a difference. Jessie Carney Smith, editor. Detroit, Visible Ink Press, 1993. 632 p.
E185.96.E65 1993

Bibliography: p. 603-632

Famous firsts of Black Americans. Hancock, S. Gretna, LA: Pelican Pub. Co., 1983. 94 p. Bibliography: p. 93-94.
E185.96.H23 1983

Great women in the struggle: an introduction for young readers. Toyomi Igus, editor. Orange, NJ: Just Us Books, 1991. 107 p. (Book of Black heroes, v. 2) Bibliography: p. 100-101.
E185.96.G74 1991

In Black and white: a guide to magazine articles, newspaper articles, and books concerning more than 15,000 Black individuals and groups. 3rd ed. Spradling, M. M. Detroit: Gale Research Co., c1980. 2 v. (1282 p.) Bibliography: p. 1267-1282.
Z1361.N39S655 1980

Supplement: a guide to magazine articles, newspaper articles, and books concerning more than 6,700 Black individuals and groups. Detroit: Gale Research, c1985. 628 p. Bibliography: p. 621-628.
Z1361N39S655 1980 Suppl.

Notable Black American women. Jessie Carney Smith, editor. Detroit, Gale Research, c1992. 1334 p. Includes bibliographical references.
E185.96N68 1992

Resources For Teachers

African studies computer resources. Internet and beyond: African linkages. Kuntz, P. S. *College & Research Libraries News, 55*, Feb. 1994: 68-70.
Z671.C62

Black history month resource book. Mary Ellen Snodgrass, editor. Detroit: Gale Research, c1993. 430 p. Bibliography: p. 405-408.
E184.7.B53 1993

Going to school: the African-American experience. Edited by Kofi Lomotey. Albany, NY: State University of New York Press, c1990. 242 p. Bibliography: p. 223-237.
LC2771.G65 1990

Introduction to African American studies: cultural concepts and theory. Anderson, T. Dubuque, IA: Kendall/Hunt, 1992. 292 p.
E185.A49 1992

Includes bibliographical references.

Math and science education for African-American youth: a curriculum challenge. Tobias, R. In National Association of Secondary School Principals. *NASSP Bulletin*, v. 76, Oct. 1992: 42-48.
L13.N27

Minorities in science: the pipeline problem. *Science*, v. 258, Nov. 13, 1992: 1175-1180, 1185-1187, 1190-1191, 1194-1196, 1199-1201, 1204-1206, 1209-1210, 1213, 1216-1218, 1223-1225, 1228, 1231-1232, "Selected Resources" p. 1235.
Q1S35

A series of articles addressing concerns over the barriers faced by minority students seeking careers in science and technology.

Books by African-American authors and illustrators for children and young adults. Williams, H. E. Chicago: American Library Association, 1991. 270 p.
Z1037.W672 1991

Sources of Book and Film Reviews and Recommendations

Appraisal: science books for young people. v.1-winter 1967- Boston, Children's Science Book Review Committee. quarterly.
Z7401.A63

Malinowsky, H. Robert. ***Best science and technology reference books for young people.*** Phoenix, Oryx Press, 1991. 216 p.
Z7401.M277 1991

Morrison, Philip, and Phylis Morrison. **Science books for young people.** *Scientific American*, v.269, Dec. 1993: 132-137, 139.
T1.S5

Outstanding science trade books for children in 1992. *Science & children*, v.30, Mar. 1993: 26-35. (The annotated list is a regular feature of the March issue.)

Science books & films. v.1- Apr. 1965- Washington, American Association for the Advancement of Science. 9 issues a year.
Z7401.S362 1992

Science & technology: a purchase guide for libraries. Pittsburgh, Carnegie Library of Pittsburgh, Science and Technology Dept., 1992. 168 p.

Published annually since 1963, this is an annotated bibliography of new books in science, technology, consumer medicine and related subjects intended primarily for the general adult reader. A special feature is the selection of books for libraries which buy only 50-100 titles each year.

Wolff, Kathryn, Susan M. O'Connell, and Valerie J. Montenegro. ***AAAS science book list, 1978-1986.*** Washington, American Association for the Advancement of Science, 1986. 568 p. (AAAS publication, 85-24)
Q181.A1A68 no. 85-2

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Books to Help Teachers Achieve Science Literacy

Ann Cwiklinski, Beth Czapla, & Luli Stern

September 1996

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

Many teachers accept science literacy as an important goal for K-12 education. Those without a strong background in science, mathematics, and technology, however, may be unsure of how to teach important ideas from these fields to their students. The American Association for the Advancement of Science (AAAS) provided some direction with its report, *Science for All Americans (1989)*, that includes a set of recommendations about what scientifically literate citizens should know and be able to do. A companion report, *Benchmarks for Science Literacy* (1993), elaborates the expected progress that students should make toward science literacy by recommending what students should know and be able to do at certain grade levels. Many of the ideas and recommendations found in these two reports have subsequently influenced formulation of *National Science Education Standards* (National Resarch Council, 1996) as well as numerous state and local curriculum frameworks.

But where can teachers turn to strengthen their own understanding of science ideas and bring substance to local, state, and national standards? As part of its comprehensive effort to reform K-12 education, Project 2061 of the AAAS has begun to address this problem, recently developing a database of trade books on topics central to science literacy. The database is designed to help teachers better understand a specific set of learning goals for their students by linking directly to recommendations in *Science for All Americans*. Though broad in scope, *Science for All Americans* focuses on ideas central to science literacy, deliberately omitting less crucial topics, however popular in today's curriculum materials and classrooms.

The Database

Project 2061's trade books database contains 120 entries describing nonfiction science books, collections of essays, philosophical works, and even works of fiction likely to enrich the reader's understanding of some important ideas in science, mathematics, or technology. Textbooks or reference works have been deliberately omitted in favor of books that cover a few important topics in depth. Many of the books are written by well-known scientists and engineers who are also accomplished writers, able to make complex ideas intelligible to the lay reader. Because most teachers will be knowledgeable about some of the topics in *Science for All Americans* but less familiar with others, the selected trade books range from basic introductions—some actually written with young adults in mind—to more sophisticated treatments requiring considerable background knowledge.

Books in the database meet three criteria: (1) they explicity address content in *Science for All Americans*, (2) they come highly rated by *Science Books & Films* or a similar credible source, and (3) they are likely to be of interest to a general audience, including teachers of all grades and subjects. All were published within the past 10 years, with the exception of a few older books that remain unsurpassed in dealing with a particular topic.

Each entry in the trade books database includes full bibliographic information, a table of contents (when one exists), other descriptive data, and a review. Links to specific chapters and sections of Science for All Americans allow users to search systematically for books dealing with a specific idea or topic from that report. Or, users can follow their own interests and browse less systematically through as few or as many database entries as they wish.

The Books

Following are the trade books identified as providing reliable information on ideas central to scientific literacy. The books are grouped according to the chapters in *Science for All Americans (SFAA)* to which they are related.

The Nature of Science
(SFAA Chapter 1)

Animal Experimentation: Cruelty or Science? by Nancy Day, Enslow, 1994

Apprentice to Genius: The Making of a Scientific Dynasty, by Robert Kanigel, Macmillan, 1986

Bad Science, by Gary Taubes, Random House, 1993

Bitten by the Biology Bug, by Maura C. Flannery, National Association of Biology Teachers, 1991 [ED 338 485]

Blueprints: Solving the Mystery of Evolution, by Maitland A. Edey and Donald C. Johanson, Little, Brown, 1989

The Common Sense of Science, by Jacob Bronowski, Harvard University Press, 1978

Great Essays in Science, by Martin Gardner (Ed.), Prometheus Books, 1994

How We Know: An Exploration of the Scientific Process, by Martin Goldstein and Inge F. Goldstein, Plenum, 1978

I Want to Be a Mathematician: An Automathography, by Paul R. Halmos, Springer-Verlag, 1985

Late Night Thoughts on Listening to Mahler's Ninth Symphony, by Lewis Thomas, Viking, 1983

Mayonnaise and the Origin of Life: Thoughts of Minds and Molecules, by Harold J. Morowitz, Charles Scribner's Sons, 1985

A Physicist on Madison Avenue, by Tony Rothman, Princeton University Press, 1991

Radioactivity: From the Curies to the Atomic Age, by Tom McGowen, FranklinWatts, Inc., 1986

Rats, Lice and History, by Hans Zinsser, Little, Brown, 1934

The Science Gap: Dispelling the Myths and Understanding the Reality of Science, by Milton A. Rothman, Prometheus Books, 1992

The Scientific Attitude, 2nd ed., by Frederick Grinnell, The Guilford Press, 1992

The Search for Solutions, by Horace Freeland Judson, Holt, Rinehart and Winston, 1980

Signs of Life, by Robert Pollack, Houghton Mifflin/Viking, 1994

To Know a Fly, by Vincent Gaston Dethier, Holden-Day, Inc., 1963

The Virgin and the Mousetrap: Essays in Search of the Soul of Science, by Chet Raymo, Viking, 1991

The World of Mathematics, by James R. Newman, Simon & Schuster, 1956

The Nature of Mathematics
(SFAA Chapter 2)

Archimedes' Revenge: The Joys and Perils of Mathematics, by Paul Hoffman, Fawcett Crest, 1988

How We Know: An Exploration of the Scientific Process, by Martin Goldstein and Inge F. Goldstein, Plenum, 1978

I Want to Be a Mathematician: An Automathography, by Paul R. Halmos, Springer-Verlag, 1985

The Mathematical Universe, by William Dunham, John Wiley & Sons, 1994

One Two Three...Infinity, by George Gamow, Dover, 1947

Recent Revolutions in Mathematics, by Albert

Stwertka. Franklin Watts, Inc., 1987
The Refrigerator and the Universe: Understanding the Laws of Energy, by Martin Goldstein and Inge F. Goldstein. Harvard University Press, 1993
The World of Mathematics, by James R. Newman, Simon & Schuster, 1956

The Nature of Technology
(SFAA Chapter 3)

The Control Revolution: Technical and Economic Origins of the Informanon Society, by James R. Beniger, Harvard University Press, 1986
The Day the Sun Rose Twice, by Ferenc Morton Szasz, University of New Mexico Press, 1984
The Design of Everyday Things, by Donald A. Norman, Doubleday (originally The Psychology of Everyday Things, Basic Books), 1988
Discovery, Innovation and Risk: Case Studies in Science and Technology, by Newton H. Copp and Andrew W. Zanella, MIT Press, 1993
Engineering and the Mind's Eye, by Eugene S. Ferguson, MIT Press, 1992
Engines of Change: The American Industrial Revolution, 1790-1860, by Brooke Hindle and Steven Lubar, Smithsonian Institution Press, 1986
Flying Buttresses, Entropy, and O-Rings: The World of an Engineer, by James L. Adams, Harvard University Press, 1992
Inventors at Work: Interviews with 16 Notable American Inventors, by Kenneth A. Brown, Tempus, 1988
Medical Technology and Society, by Joseph D. Bronzino, Vincent H. Smith, and Maurice L. Wade, McGraw-Hill, 1990
The Nuclear Energy Option: An Alternative for the '90s, by Bernard L. Cohen, Plenum, 1990
The Search for Solutions, by Horace Freeland Judson, Holt, Rinehart and Winston, 1980
Supercomputing and the Transformation of Science, by William J. Kaufmann III and Larry L. Smarr, Scientific American Library, 1993
Superstuff! by Fred Bortz, FranklinWatts, Inc., 1990
Technologies Without Boundaries: On Telecommunications in a Global Age, by Ithiel De Sola Pool, Harvard University Press, 1990
Technology and the Future, 6th ed., by Albert H. Teich (Ed.), St. Martin's Press, 1993
To Engineer Is Human, by Henry Petroski, Random House, 1982
Works of Man, by Ronald W. Clark, Viking, 1985

The Physical Setting
(SFAA Chapter 4)

Atom: Journey Across the Subatomic Cosmos, by Isaac Asimov, Dutton/ Signet, 1991
Beginnings: The Story of Origins-Of Mankind, Life, the Earth, the Universe, by Isaac Asimov, Walker & Co., 1987
An Equation That Changed the World: Newton, Einstein, and the Theory of Relativity, by Harald Fritzsch and translated by Karin Heusch, University of Chicago Press, 1994
From Stone to Star: A View of Modern Geology, by Claude Allegre and translated by Deborah Kurmes Van Dam, Harvard University Press, 1992
Isaac Asimov's Guide to Earth and Space, by Isaac Asimov, Random House, 1991
Knowledge and Wonder-The Natural World as Man Knows It, by Victor F. Weisskopf, Doubleday, 1979
Lonely Hearts of the Cosmos: The Story of the Scientific Quest for the Secret of the Universe, by Dennis Overbye, HarperCollins, 1991
Nuclear Choices: A Citizen's Guide to Nuclear Technology, by Richard Wolfson, MIT Press, 1991
A Physicist on Madison Avenue, by Tony Rothman, Princeton University Press, 1991
Physics for Poets, by Robert H. March, McGraw-Hill, 1992
Physics: From Newton to the Big Bang, by Albert and Eve Stwertka, Franklin Watts, Inc., 1986
Planet Earth, by Jonathan Weiner, Bantam, 1986
Powers of Ten: A Book about the Relative Size of Things in the Universe and the Effect of Adding Another Zero, by Philip and Phylis Morrison and the office of Charles and Ray Eames, Scientific American Library, 1994
Recent Revolutions in Mathematics, by Albert Stwertka, Franklin Watts, Inc., 1987
The Refrigerator and the Universe: Understanding the Laws of Energy, by Martin Goldstein and Inge F. Goldstein, Harvard University Press, 1993
Seven Ideas That Shook the Universe, by Nathan Spielberg and Bryon D. Anderson, John Wiley & Sons, 1987
Stephen Hawking's Universe, by John Boslough, Quill/ Morrow, 1985
Superstuff! by Fred Bortz, Franklin Watts, Inc., 1990

The Living Environment
(SFAA Chapter 5)

The Beak of the Finch: A Story of Evolution in Our Time, by Jonathan Weiner, Knopf, 1994
Beauty and the Beast: The Coevolution of Plants and Animals, by Susan Grant, Charles Scribner's Sons, 1984
Beginnings: The Story of Origins-Of Mankind, Life, the Earth, the Universe, by Isaac Asimov, Walker & Co., 1987
Bitten by the Biology Bug, by Maura C. Flannery, National Association of Biology Teachers, 1991
Blueprints: Solving the Mystery of Evolution, by Maitland A. Edey and Donald C. Johanson, Little, Brown, 1989
The Body, by Anthony Smith, Viking, 1986
Cells, by George S. Fichter, Franklin Watts, Inc., 1986
The Creation of Life: Past, Future, Alien, by Andrew Scott, Basil Blackwell, 1986
Diatoms to Dinosaurs: The Size and Scale of Living Things, by Chris McGowan, Island Press, 1994
Ever Since Darwin: Reflections in Natural History, by Stephen Jay Gould, W. W. Norton, 1977
Extinction, by Rebecca Stefoff, Chelsea House Publishers, 1992
The Flamingo's Smile: Reflections in Natural History, by Stephen Jay Gould, Norton, 1985
The Flight of the Iguana: A Sidelong View of Science and Nature, by David Quammen, Delacorte Press, 1988
Gene Future: The Promise and Perils of the New Biology, by Thomas F. Lee, Plenum, 1993
Global Ecology, by Colin Tudge, Oxford University Press, 1991
Knowledge and Wonder-The Natural World as Man Knows It, by Victor F. Weisskopf, Doubleday, 1979
The Language of Genes, by Steve Jones, Anchor/ Doubleday, 1994
The Lives of a Cell: Notes of a Biology Watcher, by Lewis Thomas, Viking, 1974
Mammal Evolution: An Illustrated Guide, by R. J. G. Savage, Facts On File, 1986
Mayonnaise and the Origin of Life: Thoughts of Minds and Molecules, by Harold J. Morowitz, Charles Scribner's Sons, 1985
The New Biology: Discovering the Wisdom in Nature, by Robert Augros and George Stanciu, Shambhala Publications Inc., 1987
New Theories on the Origins of the Human Race, by Christopher Lampton, Franklin Watts, Inc., 1989
Signs of Life, by Robert Pollack, Houghton Mifflin/Viking, 1994
A View from the Heart: Bayou Country Ecology, by June C. Kennedy, Blue Heron Press, 1991
The Virgin and the Mousetrap: Essays in Search of the Soul of Science, by Chet Raymo, Viking, 1991
Was George Washington Really the Father of Our Country? A Clinical Geneticist Looks at World History, by Robert Marion, Addison-Wesley, 1994
What Makes You What You Are: A First Look at Genetics, by Sandy Bornstein, Messner, 1989
The World of Microbes, by Howard Gest, Science Tech, 1987

The Human Organism
(SFAA Chapter 6)

The Ascent of Man, by Jacob Bronowski, Little, Brown, 1974
Beginnings: The Story of Origins-Of Mankind, Life, the Earth, the Universe, by Isaac Asimov, Walker & Co., 1987
Bitten by the Biology Bug, by Maura C. Flannery, National Association of Biology Teachers, 1991
Blueprints: Solving the Mystery of Evolution, by Maitland A. Edey and Donald C. Johanson, Little, Brown, 1989
The Body, by Anthony Smith, Viking, 1986
The Body in Time, by Kenneth Jon Rose, John Wiley & Sons, 1988
The Brain, by Richard M. Restak, Bantam, 1984

Ever Since Darwin: Reflections in Natural History, by Stephen Jay Gould, W. W. Norton, 1977
Global Ecology, by Colin Tudge, Oxford University Press, 1991
Late Night Thoughts on Listening to Mahler's Ninth Symphony, by Lewis Thomas, Viking, 1983
The Lives of a Cell: Notes of a Biology Watcher, by Lewis Thomas, Viking, 1974
Mammal Evolution. An Illustrated Guide, by R. J. G. Savage, Facts On File, 1986
The Man Who Mistook His Wife for a Hat, by Oliver Sacks, Harper & Row, 1985
Microbe Hunters, by Paul de Kruif, Harcourt Brace Jovanovich, 1926
The Mind, by Anthony Smith, Viking, 1984
The New Biology: Discovering the Wisdom in Nature, by Robert Augros and George Stanciu, Shambhala, 1987
New Theories on the Origins of the Human Race, by Christopher Lampton, Franklin Watts, Inc., 1989
Rats, Lice and History, by Hans Zinsser, Little, Brown & Co., 1934
Traces of Life: The Origins of Humankind, by Kathryn Lasky, William Morrow & Co., 1989
The Virus Invaders, by Alan E. Nourse, Franklin Watts, Inc., 1992
Was George Washington Really the Father of Our Country? A Clinical Geneticist Looks at World History, by Robert Marion, Addison-Wesley, 1994
What Makes You What You Are: A First Look at Genetics, by Sandy Bornstein, Messner, 1989
The World of Microbes, by Howard Gest, Science Tech, 1987
The Youngest Science: Notes of a Medicine-Watcher, by Lewis Thomas, Viking, 1983

Human Society
(SFAA Chapter 7)

The Control Revolution: Technical and Economic Origins of the Information Society, by James R. Beniger, Harvard University Press, 1986
Economics Explained: Everything You Need to Know about How the Economy Works and Where It's Going, by Robert L. Heilbroner and Lester C. Thurow, Simon & Schuster/Touchstone, 1994
Economy and Society, by Robert J. Holton, Routledge, 1992
A History of Private Life: Riddles of Identity in Modern Times, by Antoine Prost and Gérard Vincent (Eds.), translated by Arthur Goldhammer, Harvard University Press, 1991
The Human Cycle, by Colin M. Turnbull, Simon & Schuster, 1983
Man on Earth, by John Reader, University of Texas Press, 1988
Metaman: The Merging of Humans and Machines into a Global Superorganism, by Gregory Stock, Simon & Schuster, 1993
So Shall You Reap: Farming and Crops in Human Affairs, by Otto T. Solbrig and Dorothy J. Silbrig, Island Press, 1994

The Designed World
(SFAA Chapter 8)

The Age of Electronic Messages, by John G. Truxal, MIT Press, 1990
The Control Revolution: Technical and Economic Origins of the Information Society, by James R. Beniger, Harvard University Press, 1986
The Day the Sun Rose Twice, by Ferenc Morton Szasz, University of New Mexico Press, 1984
Discovery, Innovation and Risk: Case Studies in Science and Technology, by Newton H. Copp and Andrew W. Zanella, MIT Press, 1993
Energy Demands, by Brian Gardiner, Franklin Watts, Inc., 1990
Engines of Change: The American Industrial Revolution, 1790-1860, by Brooke Hindle and Steven Lubar, Smithsonian Institution Press, 1986
Medical Technology and Society, by Joseph D. Bronzino, Vincent H. Smith, and Maurice L. Wade, McGraw-Hill, 1990
Microbe Hunters, by Paul de Kruif, Harcourt Brace Jovanovich, 1926
Nuclear Choices: A Citizen's Guide to Nuclear Technology, by Richard Wolfson, MIT Press, 1991
The Nuclear Energy Option: An Alternative for the '90s, by Bernard L. Cohen, Plenum, 1990
Our Natural Resources and Their Conservation, 7th ed., by Harry Kircher, Donald Wallace, and Dorothy Gore, Interstate Publishers, 1991
Pasteur and Modern Science, by Rene Dubos, Science Tech, 1988
So Shall You Reap: Farming and Crops in Human Affairs, by Otto T. Solbrig and Dorothy J. Solbrig, Island Press, 1994
Supercomputing and the Transformation of Science, by William J. Kaufmann III and Larry L. Smarr, Scientific American Library, 1993
Superstuff! by Fred Bortz, Franklin Watts, Inc., 1990
Technologies Without Boundaries: On Telecommunications in a Global Age, by Ithiel De Sola Pool, Harvard University Press, 1990
Technology and the Future, 6th ed., by Albert H. Teich (Ed.), St. Martin's Press, 1993
Telecommunications: From Telegraphs to Modems, by Christopher Lampton, Franklin Watts, Inc., 1991
The Virus Invaders, by Alan E. Nourse, Franklin Watts, Inc., 1992
Works of Man, by Ronald W. Clark, Viking, 1985
So Shall You Reap: Farming and Crops in Human Affairs, by Otto T. Solbrig and Dorothy J. Solbrig, Island Press, 1994

The Mathematical World
(SFAA Chapter 9)

Archimedes' Revenge: The Joys and Perils of Mathematics, by Paul Hoffman, Fawcett Crest, 1988
Discovering Mathematics: The Art of Investigation, by A. Gardiner, Oxford University Press, 1987
An Equation That Changed the World. Newton, Einstein, and the Theory of Relativity, by Harald Fritzsch and translated, by Karin Heusch, University of Chicago Press, 1994
From Zero to Infinity, 4th ed., by Constance Reid, Mathematical Association of America, 1992
How to Lie with Statistics, by Darrell Huff, W. W. Norton, 1954
How to Solve It, by George Polya, Princeton University Press, 1945
How We Know: An Exploration of the Scientific Process, by Martin Goldstein and Inge F. Goldstein, Plenum, 1978
Innumeracy: Mathematical Illiteracy and Its Consequences, by John Allen Paulos, Hill and Wang, 1988
Lady Luck, by Warren Weaver, Dover, 1963
The Mathematical Universe, by William Dunham, John Wiley & Sons, 1994
On the Shoulders of Giants: New Approaches to Numeracy, by National Research Council, National Academy Press, 1990
One Two Three...Infinity, by George Gamow, Dover, 1947
Recent Revolutions in Mathematics, by Albert Stwertka, Franklin Watts, Inc., 1987
The Refrigerator and the Universe: Understanding the Laws of Energy, by Martin Goldstein and Inge F. Goldstein, Harvard University Press, 1993
Statistics Concepts and Controversies, by David S. Moore, W.H. Freeman and Co., 1979
Time Travel and Other Mathematical Bewilderments, by Martin Gardner, W. H. Freeman and Co., 1988
The World of Mathematics, by James R. Newman, Simon & Schuster, 1956

Historical Perspectives
(SFAA Chapter 10)

The Beak of the Finch: A Story of Evolution in Our Time, by Jonathan Weiner, Knopf, 1994
Blueprints: Solving the Mystery of Evolution, by Maitland A. Edey and Donald C. Johanson, Little, Brown, 1989
Charles Darwin: Evolution of a Naturalist, by Richard Milner, Facts on File, 1994
The Control Revolution: Technical and Economic Origins of the Information Society, by James R. Beniger, Harvard University Press, 1986
The Day the Sun Rose Twice, by Ferenc Morton Szasz, University of New Mexico Press, 1984
Discovery, Innovation and Risk: Case Studies in Science and Technology, by Newton H. Copp and Andrew W. Zanella, MIT Press, 1993
Discovery of Time, by Stephen Toulmin and June Goodfield, Harper & Row, 1965
Engines of Change: The American Industrial Revolution, 1790-1860, by Brooke Hindle and Steven Lubar, Smithsonian Institution Press, 1986
Ever Since Darwin: Reflections in Natural History, by Stephen Jay Gould, W. W. Norton, 1977

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The Fabric of the Heavens, by Stephen Toulmin and June Goodfield, Harper & Row, 1961
The History of Modern Science: A Guide to the Second Scientific Revolution, 1800-1950, by Stephen G. Brush, Iowa State University Press, 1988
The History of Science from 1895 to 1945, by Ray Spangenburg and Diane K. Moser, Facts on File, 1994
The History of Science from the Ancient Greeks to the Scientific Revolution, by Ray Spangenburg and Diane K. Moser, Facts on File, 1993
The History of Science in the Eighteenth Century, by Ray Spangenburg and Diane K. Moser, Facts on File, 1993
The History of Science in the Nineteenth Century, by Ray Spangenburg and Diane K. Moser, Facts on File, 1994
A History of the Sciences, by Stephen F. Mason, Collier, 1962
The Major Achievements of Science: The Development of Science from Ancient Times to the Present, by A. E. E. McKenzie, Iowa State University Press, 1988
Mammal Evolution: An Illustrated Guide, by R. J. G. Savage, Facts On File, 1986
Microbe Hunters, by Paul de Kruif, Harcourt Brace Jovanovich, 1926
New Theories on the Origins of the Human Race, by Christopher Lampton, Franklin Watts, Inc., 1989
Nuclear Choices: A Citizen's Guide to Nuclear Technology, by Richard Wolfson, MIT Press, 1991
Pasteur and Modern Science, by Rene Dubos, Science Tech, 1988
Physics for Poets, by Robert H. March, McGraw-Hill, 1992
Physics: From Newton to the Big Bang, by Albert and Eve Stwertka, Watts, 1986
Planet Earth, by Jonathan Weiner, Bantam, 1986
Radioactivity: From the Curies to the Atomic Age, by Tom McGowen, Watts, 1986
Science and the Making of the Modern World, by John Marks, Heinemann, 1983
Seven Ideas That Shook the Universe, by Nathan Spielberg and Bryon D. Anderson, Wiley, 1987
The Virus Invaders, by Alan E. Nourse, Franklin Watts, Inc., 1992
Works of Man, by Ronald W. Clark, Viking, 1985
The World of Microbes, by Howard Gest, Science Tech, 1987

Common Themes
(SFAA Chapter 11)

Charles Darwin: Evolution of a Naturalist, by Richard Milner, Facts on File, 1994
The Common Sense of Science, by Jacob Bronowski, Harvard University Press, 1978
The Control Revolution: Technical and Economic Origins of the Information Society, by James R. Beniger, Harvard University Press, 1986
Cycles of Nature: An Introduction to Biological Rhythms, by Andrew Ahlgren and Franz Halberg, National Science Teachers Association, 1990
Diatoms to Dinosaurs: The Size and Scale of Living Things, by Chris McGowan, Island Press, 1994
Engineering and the Mind's Eye, by Eugene S. Ferguson, MIT Press, 1992
Engines of Change: The American Industrial Revolution, 1790-1860, by Brooke Hindle and Steven Lubar, Smithsonian Institution Press, 1986
Knowledge and Wonder: The Natural World as Man Knows It, by Victor F. Weisskopf, Doubleday, 1979
Man on Earth, by John Reader, University of Texas Press, 1988
Metaman: The Merging of Humans and Machines into a Global Superorganism, by Gregory Stock, Simon & Schuster, 1993
Our Natural Resources and Their Conservation, 7th ed., by Harry Kircher, Donald Wallace, and Dorothy Gore, Interstate, 1991
Powers of Ten: A Book about the Relative Size of Things in the Universe and the Effect of Adding Another Zero, by Philip and Phylis Morrison and the office of Charles and Ray Eames, Scientific American Library, 1994
The Scientific Attitude, 2nd ed., by Frederick Grinnell, Guilford Press, 1992
The Search for Solutions, by Horace Freeland Judson, Holt, Rinehart and Winston, 1980
On the Shoulders of Giants: New Approaches to Numeracy, by National Research Council, National Academy Press, 1990
Supercomputing and the Transformation of Science, by William J. Kaufmann III and Larry L. Smarr, Scientific American Library, 1993
The World of Mathematics, by James R. Newman, Simon & Schuster, 1956

Habits of Mind
(SFAA Chapter 12)

How to Lie with Statistics, by Darrell Huff, W. W. Norton, 1954
Innumeracy: Mathematical Illiteracy and Its Consequences, by John Allen Paulos, Hill & Wang, 1988
Inventors at Work: Interviews with 16 Notable American Inventors, by Kenneth A. Brown, Tempus, 1988
A Mathematician Reads the Newspaper, by John Allen Paulos, Basic Books, 1995
Pasteur and Modern Science, by Rene Dubos, Science Tech, 1988
A Physicist on Madison Avenue, by Tony Rothman, Princeton University Press, 1991
The Refrigerator and the Universe: Understanding the Laws of Energy, by Martin Goldstein and Inge F. Goldstein, Harvard University Press, 1993
The Science Gap: Dispelling the Myths and Understanding the Reality of Science, by Milton A. Rothman, Prometheus Books, 1992
Statistics Concepts and Controversies, by David S. Moore, W. H. Freeman and Co., 1979
You Know What They Say.... The Truth about Popular Beliefs, by Alfie Kohn, HarperCollins, 1990

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American Association for the Advancement of Science. (1993). *Benchmarks for science literacy*. New York: Oxford University Press.
National Research Council. (1996). *National science education standards*. Washington, DC: National Academy Press.
Project 2061. (1989). *Science for all Americans*. Washington, DC: AAAS

Internet Resources

Project 2061, AAAS
http://www.aaas.org/project2061/2061main.htm

Science and Mathematics Education Resources
http://www-hpcc.astro.washington.edu/scied/science.html

ERIC/CSMEE
http://www.ericse.org

Acknowledgment

This Digest has been adapted from information first presented in an article published in *Science Books & Films*, Volume 32, Number 4 (May, 1996), Page 97. *Science Books & Films* is a review journal published by the American Association for the Advancement of Science. The complete Trade Books Database mentioned in this Digest is available from Oxford University Press (1-800-451-7556), along with several other resources for teachers, on Project 2061's CD-ROM and print tool, *Resources for Science Literacy: Professional Development*.

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Making Mathematical Connections in High School

Michelle K. Reed

April 1995

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

Of all of the reform recommendations being made by the National Council of Teachers of Mathematics, making mathematical connections is among the more difficult to achieve especially at the high school level, where so much emphasis is placed on distinct content courses. Mathematical connections can relate mathematical topics to students' daily lives and to other mathematical topics but are probably most important in relating mathematics to other curriculum areas. These connections help students understand mathematics better and see it as a useful and interesting subject to study.

This digest gives samples of activities appropriate for use in high school classes to connect mathematics to other subjects. Resources are listed by subject area and are drawn from a longer annotated bibliography of mathematical connections available from ERIC/CSMEE (see end note).

Language Arts

"Fostering Collaborative Reading and Writing Experiences in Mathematics" offers several collaborative strategies for integrating reading and writing with mathematics instruction. Sample lessons demonstrate the applicability of these strategies across grade levels and across topics in mathematics.

Wood, K. D. (1992, October). Fostering collaborative reading and writing experiences in mathematics. *Journal of Reading, 36*(2), 96-103.

"No Time for Writing in Your Class?" Writing activities do not have to steal precious time from mathematics. Here are ideas for implementing four forms of writing appropriate for the mathematics class: (1) logbooks, (2) journals, (3) expository writing, and (4) creative writing. Specific examples and suggestions for classroom activities for each form of writing are given.

McIntosh, M. (1991, September). No time for writing in your class? *Mathematics Teacher, 84*(6), 423-433.

"Student-Authored Manuals as Semester Projects" describes a learning activity that requires students to write a manual to explain how to apply procedures and algorithms used in mathematics. A list of possible precalculus and calculus topics that can be used in this activity is included.

Hurwitz, M. (1990, December). Student-authored manuals as semester projects. *Mathematics Teacher, 83*(9), 701-703.

"Word Roots in Geometry" offers suggestions for a unit on word study in geometry that includes defining, recognizing, producing, and appreciating the concepts of geometry. It includes lists of terms and their Greek and Latin word origins.

McIntosh, M. E. (1994, October). Word roots in geometry. *Mathematics Teacher, 87*(7), 510-515.

Science

Mechanical devices offer an alternative to computers for exploring mathematical concepts in various curricular areas. **"The Dynamic Discograph"** describes a series of pulleys and wheels that can be used to teach mathematical principles in pattern drawing, locus, rotation in geared systems, gearing, rotational symmetry, regular plane figures, decimals, and chaotic patterns.

Bell, G. (1991, July). The dynamic discograph. *Australian Mathematics Teacher, 47*(2), 4-8.

"How to Make a 'Bucky Ball'" describes how to construct polyhedra to represent molecular structures. Each face forms regular polygons made up of balls. Step-by-step directions are provided to perform the constructions.

Stephenson, P. (1992, September). How to make a "bucky ball." *Mathematics in School, 21*(4), 14-16.

"Implementing the 'Curriculum and Evaluation Standards'" describes two activities to analyze unit-cell structures from a geometric viewpoint and invites students to apply their mathematical understanding to scientific phenomena. Students form models of the simple cube, a building block of crystalline structures, and a methane molecule.

Pacyga, R. (1994, January). Implementing the "Curriculum and Evaluation Standards." *Mathematics Teacher, 87*(1), 43-47.

Recommendations for reform in mathematics and science education advocate the integration of science and mathematics teaching and learning as a means of improving achievement and attitudes within both disciplines. **"Integrating Science and Mathematics in Teaching and Learning: A Bibliography"** is a collaborative effort of the ERIC Clearinghouse for Science, Mathematics, and Environmental Education; the National Center for Science Teaching and Learning; the National Science Foundation; and the School Science and Mathematics Association to suggest resources for classroom teachers, teacher educators, curriculum developers, and educational researchers interested in the integration of science and mathematics teaching and learning. The bibliography of 555 citations is divided into five sections: (1) Curriculum, (2) Instruction, (3) Research, (4) Curriculum-Instruction, and (5) Curriculum-Evaluation.

Berlin, D. F. (1991, August). *Integrating science and mathematics in teaching and learning: A bibliography*. Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education. (ED348233)

"Sharing Teaching Ideas" describes three activities designed to increase student participation in the classroom. The first uses reports of earthquake intensity on the Richter scale to study logarithms. The second discusses student-generated examples to introduce probability. The third activity uses prepared handouts and study groups to promote student interaction and involvement in calculus classes.

Tometsko, N. R. (1991, October). Sharing teaching ideas. *Mathematics Teacher, 84*(7), 541-546.

Social Studies

"Civic Mathematics: A Real-Life General Mathematics Course" presents a civic mathematics curriculum that considers issues of race and gender, poverty and wealth, the environment, and teen issues. It includes lists of mathematical skills reflected in the issues and a sample lesson on water resources. Quarterly projects are suggested as an

alternative to exams.

Vatter, T. (1994, September). Civic mathematics: A real-life general mathematics course. *Mathematics Teacher, 87*(6), 396-401.

"The Power of Numbers: A Teacher's Guide to Mathematics in a Social Studies Context: An Interdisciplinary Curriculum" provides mathematical experiences in real-world contexts that help students interpret, experiment, communicate, and look for multiple solutions to complex problems. The curriculum uses mathematics to help students develop higher-order thinking and communication skills. Real-world contexts give students a reason to learn and remember mathematical skills and concepts and shows them how these ideas are applied in actual practice. Thematic contexts include polling, studying trends in census data, and designing a public rail transportation system for Los Angeles. Through these activities, students participate in discussions, interpret and analyze data, make decisions, and present their ideas. Topical chapters begin with an overview and include a list of mathematical concepts, skills, vocabulary, and materials involved in the activities. Handouts are provided at the end of each chapter.

Gross, F. E. (1993). *The power of numbers: A teacher's guide to mathematics in a social studies context: An interdisciplinary curriculum*. Cambridge, MA: Educators for Social Responsibility (23 Garden Street, Cambridge, MA 02138). (ED 370 872)

"Bringing Knowledge of Women Mathematicians into the Mathematics Classroom" describes an activity to attract and retain more female students in mathematics. Visits from women who do mathematics and information about noteworthy women mathematicians are brought into the mathematics classroom. A list of women mathematicians is included.

Friedman, B. (1990, Fall). Bringing knowledge of women mathematicians into the mathematics classroom. *Mathematics and Computer Education, 24*(3), 250-253.

"Historical Digressions in Greek Geometry Lessons" attempts to combine the history of mathematics in ancient Greece with a course on theoretical geometry taught in Greek secondary schools. Three sections present the history of ancient Greek geometry, geometrical constructions using straightedge and compass, and an application of Ptolemy's theorem in solving ancient astronomy problems.

Thomaidis, Y. (1991, June). Historical digressions in Greek geometry lessons. *For the Learning of Mathematics, 11*(2), 37-43.

Arts

"The Artist's View of Points and Lines" promotes the idea that art can be used to present early concepts of geometry, including the notion of infinity. Discussed is the symbiosis that exists between the artistic and mathematical views of points, lines, and planes. Geometric models in art and using art in the classroom are also discussed.

Millman, R. S., & Speranza, R. R. (1991, February). The artist's view of points and lines. *Mathematics Teacher, 84*(2), 133-138.

"From the Ground Up: Modeling, Measuring, and Constructing Houses" is part of the *Seeing and Thinking Mathematically in the Middle Grades* series. In this unit students use mathematics to design and construct a model home from the ground up. Through the process of designing floor plans, constructing walls and roofs, and making cost estimates, students explore key concepts in geometry and measurement and engage in problem solving, communication, reasoning, and making connections. Appendices include reproducible blackline masters in both English and Spanish and sample student projects.

Education Development Center. (1993). *From the ground up: Modeling, measuring, and constructing houses*. Portsmouth, NH: Heinemann. (SE 055 609)

The harmonic mean, neglected in favor of the arithmetic and geometric means in modern mathematics, is defined and its historical relationship to music, as presented by Pythagoras, is described in **"Mathematics—A Search for Harmony."** Two geometric constructions present a picture of harmony, and an application in calculating the square root of a number is given.

Arnold, S. (1991, December). Mathematics—A search for harmony. *Australian Mathematics Teacher, 47*(4), 14-16.

Vocational

"Rates and Taxes" proposes lessons for algebra students using the context of tax calculations to learn about the concepts of slope, split functions, averages, rates, marginal rates, and percents. Students explore ramifications of possible tax revisions.

Esty, W. W. (1992, May). Rates and taxes. *Mathematics Teacher, 85*(5), 376-379.

"Sharing Teaching Ideas: Career Posters" presents an activity in which students create posters by interviewing someone who uses mathematics in his or her job, describing an actual problem that person might have to solve, and writing a paragraph explaining the problem. The posters created by the students are then used in future mathematics lessons.

Tibbs, P., & Jordan, J. (1994, September). Sharing teaching ideas: Career posters. *Mathematics Teacher, 87*(6), 410-411.

Note. The items listed here are drawn from a longer annotated bibliography of mathematical connections available from ERIC/CSMEE, 1929 Kenny Road, Columbus, OH 43210-1080. For a complete list of publications in mathematics, science, and environmental education available from ERIC/CSMEE, call 1-800-276-0462.

Finding ERIC Documents

ERIC documents (those having ED or SE numbers) can be read at any library holding an ERIC microfiche collection. Copies can be purchased from the ERIC Document Reproduction Service (EDRS): 1-800-443-ERIC.

For general questions about ERIC, the site of the nearest ERIC collection, or a list of current free and low-cost publications, contact ACCESS ERIC: 1-800-LET-ERIC.

Michelle Reed is a doctoral student in mathematics education at The Ohio State University and is interested in Montessori methods and teacher education.

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Making Mathematical Connections in Middle School

Michelle K. Reed

April 1995

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

Of all of the reform recommendations being made by the National Council of Teachers of Mathematics, making mathematical connections is among the more difficult, yet most important, to achieve, especially at the middle school level, where students are first beginning to appreciate the real power of mathematics. Mathematical connections can relate mathematical topics to students' daily lives and to other mathematical topics but are probably most helpful in relating mathematics to other curriculum areas. These connections help students understand mathematics better and see it as a useful and interesting subject to study.

This digest gives samples of activities appropriate for use in middle school classes to connect mathematics to other subjects. Resources are listed by subject area and are drawn from a longer annotated bibliography of mathematical connections available from ERIC/CSMEE (see end note).

Language Arts

"Comparing Raisins: A Lesson With Fifth Graders (Writing in Math Class)" describes an activity in which fifth-grade students solved a problem and wrote a convincing argument to prove their solution made sense.

Burns, M. (1993, November-December). Comparing raisins: A lesson with fifth graders (Writing in math class). *Writing Notebook: Visions for Learning, 11*(2), 40-41.

"A Language Arts Approach to Mathematics" proposes the use of literature to introduce new mathematical concepts. Presents a story to develop the concept of grouping, and follows with 11 activities related to the story in which students use dramatization and manipulative materials to develop new groupings, predict outcomes, validate their predictions, and discuss findings, all directed toward developing the concept of place value.

Nevin, M. L. (1992, November). A language arts approach to mathematics. *Arithmetic Teacher, 40*(3), 142-146.

"The Mathematics–Children's-Literature Connection" describes three types of children's books for use in developing mathematical concepts. Discusses the characteristics of a good mathematical concept book, methods of incorporating reading into mathematics class, and three examples of children's mathematical concept books. Includes a bibliography of 159 children's trade books selected for integrating into mathematics instruction.

Gailey, S. K. (1993, January). The mathematics–children's-literature connection. *Arithmetic Teacher, 40*(5), 258-261.

Using story writing to teach math gives students a chance to play with mathematical processes in a low-pressure way. By encouraging students to apply mathematical concepts within a narrative, teachers can see how well students understand the concepts. **"Use the Muses for Math: Five Story-Making Activities That Boost Kids' Math Skills"** presents five story-making activities to enhance mathematics skills.

Gregory, C. (1994, April). Use the muses for math: Five story-making activities that boost kids' math skills. *Instructor, 103*(8), 30-31.

Science

"Analyzing Energy and Resource Problems: An Interdisciplinary Approach to Mathematical Modeling" suggests ways in which mathematical models can be presented and developed in the classroom to promote discussion, analysis, and understanding of issues related to energy consumption. Five problems deal with past trends and future projections of availability of a nonrenewable resource—natural gas.

Fishman, J. (1993, November). Analyzing energy and resource problems: An interdisciplinary approach to mathematical modeling. *Mathematics Teacher, 86*(8), 628-633.

"IDEAS" presents activities that focus on gathering, using, and interpreting data about fingerprints as a basis for integrating mathematics and science. Patterns, classification, logical reasoning, and mathematical relationships are explored by making graphs, classifying fingerprints, and matching identical fingerprints. A parent-involvement activity sheet is included.

Young, S. L. (1991, March). IDEAS. *Arithmetic Teacher, 38*(7), 24-33.

"A Look at Project AIMS" describes features and offerings of Project AIMS (Activities Integrating Mathematics and Science) that rely on materials developed and written by teachers and use inexpensive, easily acquired equipment and supplies. The focus is on hands-on mathematics and science. Includes a brief critique of the program.

Deal, D. (1994, January). A look at Project AIMS. *School Science and Mathematics, 94*(1), 11-14.

"SSmiles" presents activities to supplement lessons on length and mass measurement or as part of a unit on atoms or orders of magnitude. Provides a lesson plan using aluminum foil to estimate unit measures, calculate the foil's thickness, and do an atom count.

Sunal, D. W., & Tracy, D. M. (Eds.). (1992, January). SSmiles. *School Science and Mathematics, 92*(1), 40-44.

Social Studies

"Decimals, Rounding, and Apportionment" discusses four historical methods by which seats in the House of Representatives are apportioned and the ways these methods can be used to reinforce operations involving decimal fractions and different rounding procedures.

Meeks, K. I. (1992, October). Decimals, rounding, and apportionment. *Mathematics Teacher, 85*(7), 523-525.

"Old Glory: A Practical Investigation Into Pattern" suggests that there has been sufficient interest in the changing arrangements of stars in the flag of the United States over the years to introduce a mathematical investigation into the various possible patterns of stars.

Selkirk, K. (1992, March). Old glory: A practical investigation into pattern. *Mathematics in School, 21*(2), 42-45.

"Taking Multicultural Math Seriously: Perspectives" asserts that social mathematics, taught with a multicultural focus, provides opportunities to help children learn about cultural pluralism. Includes three class activities that require students to analyze and interpret numerical data about immigration and the ethnic composition of the United States.

Shaw, C. C. (1993, September-October). Taking multicultural math seriously: Perspectives. *Social Studies and the Young Learner, 6*(1), 31-32.

"Using Biographies to Humanize the Mathematics Class" suggests three methods

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of introducing biographies of mathematicians into the classroom. Includes discussion and examples of the methods and lists birthdays of over 120 mathematicians. The bibliography lists books written on various reading levels and includes five books devoted to women mathematicians.

Voolich, E. D. (1993, September). Using biographies to humanize the mathematics class. *Arithmetic Teacher, 4*(1), 16-19.

Arts

"Creative Learning Experiences in Math: Resource Guide 8" emphasizes the areas of elementary level mathematics, architecture, and visual arts, with secondary emphasis on language arts and creative writing. The major goals are to develop an understanding of how the arts can enhance mathematical concepts, to describe mathematical qualities through the application of the arts, and to develop a sensitivity to the everyday uses of artistic forms in converting mathematical concepts into aesthetically pleasing concrete forms. Lesson plans are grouped into the areas of: (1) Measurement, Form, Shape, and Building Models; (2) Math in Art and Poetry; (3) Computation; (4) Patterns and Shapes; (5) Descriptive Data; and (6) Graphing.

Lee, R. T. (Ed.). (1989). *Creative learning experiences in math. Resource guide 8.* Albany: New York State Department of Education. (Originally developed through the Arts in Education Program of the Plainedge Public Schools, Bethpage, NY. Also sponsored by the New York Foundation for the Arts). (ED308 079)

"IDEAS" presents five activities for the family and K-2, 3-4, 5-6, and 7-8 levels that focus on the connections between mathematics and music. Activities examine the mathematical concepts of counting, estimation, measurement, statistics, fractions, and patterns involved in rhythm, beats in a measure, music preference, the musical scale, and radio music selection. Includes reproducible worksheets.

Moses, B. E., & Proudfit, L. (1992, December). IDEAS. *Arithmetic Teacher, 40*(4), 215-225.

Thematic Units

Having a garden in the classroom offers students a chance to explore plant life cycles, and provides a hands-on context for teaching a wide variety of basic subject area skills in science, mathematics, social studies, language arts, health, and fine arts. **"GrowLab: A Complete Guide to Gardening in the Classroom"** is designed to help teachers in grades K-8 establish and maintain a garden in their classroom. Chapter topics include setting up, choosing fluorescent tubes and containers, planting and transplanting, maintaining a healthy environment, controlling pests, preparing the garden for a long vacation, troubleshooting, cleaning and storing equipment, and building enthusiasm within the school and community. Additional suggestions for developing curriculum activities, lessons, and experiments are also provided. Appendices contain reproducible activity worksheets, a list of yearly supplies, instructions for building a grow lab, and an annotated reference section that lists books, audiovisual materials, organizational resources, and suppliers of gardening equipment and seeds.

Pranis, E., & Hale, J. (1991). *GrowLab: A complete guide to gardening in the classroom.* Burlington, VT: National Gardening Association (180 Flynn Avenue, Burlington, VT 05401). (ED366 512)

"Learn & Play Olympic Sports: Curriculum Guide for Teachers, Grades 3, 4, and 5" features lesson plans that focus on the Olympic Games. The guide is part of a larger program sponsored by the Amateur Athletic Foundation of Los Angeles that is targeted at Southern California students, ages 8-10, who were born just before or after the 1984 Los Angeles Olympic Games. Lesson plans incorporate the disciplines of mathematics, geography, language arts, science, social studies, and physical education. Examples are: "Learning Geography Through the Olympic Flame Route" (geography) and "Calculating Calories and Energy Spent in Exercise" (mathematics).

Moore, C. (1992). *Learn & play Olympic sports: Curriculum guide for teachers, grades 3, 4, and 5.* Los Angeles: Amateur Athletic Foundation of Los Angeles. (ED356167)

Vocational

"The Middle School Exploratory Vocational Wheel" presents eight models of the exploratory vocational wheel for middle and junior high school and a collection of career development activities designed for infusion in various curriculum areas. The wheel is a scheduling strategy that allows middle school students to explore elements of several different occupations as classes rotate from course to course, forming the basis for more in-depth learning when students choose full courses of interest to them. Introductory material explains various configurations of the wheel, and diagrams illustrate eight models. Lesson plans for the career development activities or "best practices" that follow are divided into five subject areas: science, social studies, mathematics, miscellaneous courses (fine arts, student services, vocational education), and language arts. Appendices list program course standards for six wheels, major concepts/content, laboratory activities, special notes, and intended outcomes for each.

Florida State Department of Education. (1990). *The middle school exploratory vocational wheel.* Tallahassee: Division of Vocational, Adult, and Community Education (Bureau of Career Development and Educational Improvement, Florida Education Center, Tallahassee, FL 32399-0400). (ED 357 285)

"Real-Life Business Math at Enterprise Village" presents a program to introduce fifth graders to everyday economic life, by constructing a true-to-life simulation of an economic community. Students apply mathematical skills to managing a checking account, calculating electric bills, and managing shops using computers.

Esty, W. W. (1991, December). Real-life business math at Enterprise Village. *Arithmetic Teacher, 39*(4), 10-14.

Note. The items listed above are drawn from a longer annotated bibliography of mathematical connections available from ERIC/CSMEE, 1929 Kenny Road, Columbus, OH 43210-1080. For a complete list of publications in mathematics, science, and environmental education available from ERIC/CSMEE, call 1-800-276-0462.

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SE 056 126

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Making Mathematical Connections in the Early Grades

Michelle K. Reed

April 1995

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

Of all of the reform recommendations being made by the National Council of Teachers of Mathematics, making mathematical connections is among the more difficult to achieve, yet is so helpful in motivating students in the early grades. Mathematical connections can relate mathematical topics to students' daily lives and to other mathematical topics but are probably most important in relating mathematics to other curriculum areas. These connections help students understand mathematics better and see it as a useful and interesting subject to study.

This digest gives samples of activities appropriate for use in the early grades to connect mathematics to other subjects. Resources are listed by subject area and are drawn from a longer annotated bibliography of mathematical connections available from ERIC/CSMEE.

Language Arts

"A + B = 1, 2, 3 (Language Arts/Mathematics Connection)" is a collection of teaching materials to connect language arts and mathematics. Materials in the collection include: (1) a statement of fundamental assumptions about language, literacy, and learning; (2) objectives for mathematics as communication; (3) discussion of a new approach to teaching mathematics that draws on the best features of language teaching; and (4) numerous class activities such as giving and following directions, techniques of shared reading, a place value mat, a description of learning logs, making a math story, collecting and organizing data, and examples of how poems can be part of a mathematics lesson. A 220-item bibliography is included.

Lim, J. A., & Abell-Victory, J. (1991, May). *A + B = 1, 2, 3 (Language arts/mathematics connection).* Workshop presented at the Annual Meeting of the International Reading Association, Las Vegas, NV. (ED 335 637)

"Links to Literature: The Most Important Thing Is..." describes the use of Margaret Wise Brown's *The Important Book* to involve students in writing about defining qualities and attributes of geometric shapes.

Bertheau, M., & Thiessen, D. (1994, October). Links to literature: The most important thing is.... *Teaching Children Mathematics, 1*(2), 112-115.

"Thinking About Fractions (Writing in Mathematics Class)" describes two activities in a second-grade class that use drawing and writing to explore fractions.

Burns, M. (1992, November-December). Thinking about fractions (Writing in mathematics class). *Writing Notebook: Visions for Learning, 10*(2), 38, 43.

"Using Language Arts to Promote Mathematics Learning" considers four language arts—speaking, listening, reading, and writing—as activities that enhance the development of mathematical concepts. Suggests ways language arts can be used in learning difficult concepts such as missing addends, algorithms, number facts, and problem solving. Lists 39 references.

Burton, G. M. (1992, Summer). Using language arts to promote mathematics learning. *Mathematics Educator, 3*(2), 26-31.

Literature that explores mathematical concepts is a natural tool for attaining the goals of the NCTM *Standards*. **"The Wonderful World of Mathematics: A Critically Annotated List of Children's Books in Mathematics"** provides reviews of approximately 500 books in mathematics for preschool through grade 6. Each review describes the content of the book and rates its usefulness in teaching mathematical concepts. The books are classified into four main categories: (1) early number concepts, (2) number extensions and connections, (3) measurement, and (4) geometry and spatial sense. Two indexes list the books by author and by title.

Thiessen, D., & Matthias, M. (Eds.). (1992). *The wonderful world of mathematics: A critically annotated list of children's books in mathematics.* Reston, VA: National Council of Teachers of Mathematics. (ED 355 124)

Science

"Activities for Teaching K-6 Math/Science Concepts" is a revised edition of one of the products of a project, "Teaching Mathematics and Science Concepts, K-6," funded by the New York State Department of Education. This book contains lesson ideas that reflect the belief that science and mathematics are opposite sides of the same coin. Activities in this booklet (1) combine important mathematics and science in a single lesson; (2) have been tried out by classroom teachers and elementary school children; (3) involve "hands-on" activities; (4) use readily available, everyday materials; and (5) can be used as the basis for further activities. Included is a list of free and inexpensive materials that are useful in teaching science and mathematics and which include everything needed for the activities in this booklet. The topics of geometry, shapes, the earth, measuring, counting, inclined planes, work, gravity, friction, observing, classifying, angles, dew point, probability, symmetry, variation in nature, metric system, data collecting, estimation, ratios, proportion, melting, freezing, graphs, inferring, patterns, feeding and locomotion of animals, adaptations in animals, volume, ground water, and water supply are presented. A section "Sources of Further Ideas" contains a brief list of professional journals, teacher idea/reference books, and curriculum projects, along with a list of useable junk.

Farmer, W. A., & Farrell, M. A. (1989). *Activities for teaching K-6 math/science concepts.* Bowling Green, OH: School Science and Mathematics Association (126 Life Sciences Building, Bowling Green State University, Bowling Green, OH 43403-0256). (ED 347 051)

"IDEAS" connects science and mathematics in a series of activities related to the heart. Worksheets designed for multiple grade levels investigate (1) How Big Is Your Heart? (levels K-2); (2) Every Beat of Your Heart (levels 3-4); (3) What's the Beat? (levels 5-6), and (4) Heartifacts (levels 7-8). Extensions of the activities are discussed.

Passarello, L. M., & Fennell, F. (1992, February). IDEAS. *Arithmetic Teacher, 39*(6), 32-39.

"SSMiles" presents five integrated mathematics and science lessons in which students investigate the characteristics, behavior, lifecycles, and motion of mealworms and the feasibility of raising mealworms for profit. Purpose, time, materials needed, procedures, and extensions for each activity are discussed.

Tracy, D. M. (Ed.). (1993, October). SSMiles. *School Science and Mathematics, 93*(6), 332-337.

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Social Studies

"Data Buddies: Primary-Grade Mathematicians Explore Data" describes a project for first- and second-graders involving gathering and interpreting survey data from a student they have never met in order to identify the student at the end of the project. Includes sample curricular goals and instructional strategies.

Bloom, S. J. (1994, October). Data buddies: Primary-grade mathematicians explore data. *Teaching Children Mathematics, 1*(2), 80-86.

"Early Childhood Corner: Calendar Reading: A Tradition That Begs Remodeling" describes the construction of a children's calendar for use in school, including development of time concepts, developing event recording systems, daily and weekly schedules of events, multiple-week schedules of events, and a day-date calendar.

Schwartz, S. L. (1994, October). Early childhood corner: Calendar reading: A tradition that begs remodeling. *Teaching Children Mathematics, 1*(2), 104-109.

"Social Math: Teacher's Resources" presents recommended resources for implementing activities in social mathematics, an instructional approach created by combining numerical information with social studies concepts. Describes ways to generate historical timelines, create family histories, and collect and interpret numerical data.

Porter, P. (Ed.). (1993, September-October). Social math: Teacher's resources. *Social Studies and the Young Learner, 6*(1), 25-27.

"World Cultures in the Mathematics Class" introduces a cultural perspective into the teaching of mathematics. Describes the mathematical practices of African peoples and of the indigenous peoples of the Americas in relationship to numbers and numeration, design and pattern, architecture, and games of chance and skill.

Zaslavsky, C. (1991, June). World cultures in the mathematics class. *For the Learning of Mathematics, 11*(2), 32-36.

Arts

"IDEAS" presents a thematic approach to curriculum that enables students to connect topics and supports meaningful inquiry. Presents four activities for levels K-2, 3-4, 5-6, and 7-8 in which students explore problems of interest involving the theme of construction and architecture. Includes reproducible worksheets.

Brahier, D. (Ed.). (1993, February). IDEAS. *Arithmetic Teacher, 40*(6), 325-337.

"Math in Motion: Origami in the Classroom" presents techniques and activities to teach mathematics using origami paper folding. Part 1 includes a history of origami, mathematics and origami, and careers using mathematics. Parts 2 and 3 introduce paper folding concepts and teaching techniques, including low-budget paper resources. Part 4 includes a lesson plan guide and interdisciplinary cross-reference chart. Part 5 includes paper-folding projects and activities using the square, rectangle, and triangle. Part 6 offers cultural and educational enrichment activities, including math journals, thought-of-the-week quotations, Japanese fan, haiku, fortune cookie recipe, Japanese vocabulary of numbers and common words, tangram puzzles, origami mobile, the thousand cranes story, and a cooperative learning activity about diagramming. Teacher scripts are included with some lessons. Staff development, family, and student workshops are also available.

Pearl, B. (1994). *Math in motion: Hands-on math: Origami in the classroom.* Newport Beach, CA: Author (2417 Vista Hogar, Newport Beach, CA 97660). (714) 721-0633. (SE054376)

"Word Problems and the Language Connection" presents the method of employing student-written playlets and a technique called "stage freeze" to help students identify appropriate operations during problem solving. Provides five sample playlets, a description of the method, and several benefits from using the method.

Matz, K. A., & Leier, C. (1992, April). Word problems and the language connection. *Arithmetic Teacher, 39*(8), 14-17.

Thematic Approach

"Empowering Students With 'The Math Connection'" discusses a children's television show, *The Math Connection*, which shows connections between mathematics and daily pursuits of local workers and tries to improve attitudes of students and teachers towards mathematics. Describes the content and structure and the open-ended problems on which students work to prepare for the show.

Rosnick, P. (1994, May). Empowering students with "The Math Connection." *Arithmetic Teacher, 41*(9), 513-517.

"Math Safari" describes a mathematical, scientific, geographic, informational adventure for fourth-grade students. It integrates all curriculum areas and other skills by using information children must find in books to pose math problems about animals. It encourages cooperative learning, critical reading, analysis, and use of research skills.

Nelson, V., & Stanko, A. (1992, August). Math safari. *Learning, 21*(1), 43-45.

"Wet and Wild Water" uses a thematic approach to show the integration of subjects (reading, mathematics, language arts, science/fine arts) and skills to create a context for learning. There are six major topics in the guide, each with subtopics: (1) Getting Your Feet Wet—An Introduction to Water; (2) Fishy Business—Applying Economics; (3) The Big Splash—Water Sports, Athletes, and Water Animals; (4) Where in the World—Famous Explorers of the Past; (5) Water Mysteries—Myths, Legends, and Strange Occurrences (Loch Ness Monster and Atlantis); and (6) Join Hands for Tomorrow's Water—Global Responsibility. Under each topic is an indication of the core knowledge required, a description of the activity, directions for a water experiment, and a list of books and resources for the teacher.

Indiana State Department of Education. (1990). *Wet and wild water.* Indianapolis: Center for School Improvement and Performance. (ED338478)

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SE 056 125

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National Standards and Benchmarks in Science Education: A Primer

Denise Close, Joyce Miller, Lynda Titterington, & David Westwood

September 1996

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

In the midst of our national quest for what students should know and be able to do in science, what is the bottom line for teachers? What should teachers know and be able to do in the science classroom? The following questions and answers are intended to highlight the key features of the science education reform movement as it relates to curricula and classroom practice. Reform of science and mathematics education has been on the national agenda for over a decade, and key leaders have offered their perspectives of progress to date (Rutherford, 1996; Strassenburg, 1996; Vos, 1996). The ideas presented here have been gleaned from the *National Science Education Standards* (National Research Council, 1996) and the *Benchmarks for Science Literacy* (American Association for the Advancement of Science, 1993) Both documents elaborate ideas emerging from Project 2061 (Rutherford & Ahlgren, 1990) and other efforts that have focused on the science knowledge and skills literate citi-

What are benchmarks and standards?

Both benchmarks and standards are commonly defined as reference points for judging quality, but the *Benchmarks* and *Standards* documents differ in form and purpose. The *Benchmarks* are intended to serve as curriculum design tools to help schools promote science literacy, specifying the levels of understanding and ability that all students are expected to reach along the way to becoming literate in science. The *Standards* complement the *Benchmarks* by going beyond science content considerations to provide frames of reference for judging the quality of teaching, professional development, assessment, science education programs, and educational systems.

What are benchmarks and standards not?

- They are not "regulations" to specify uniform programs based on a particular curriculum, philosophy, or instructional approach, but rather can be interpreted and implemented in a variety of ways.
- They do not imply that separate science teaching units should support each other in isolation.
- They do not diminish the responsibility of local and state agencies to design, select, and implement curriculum materials, instructional practices, and assessment strategies (BSCS, 1995).

What are the goals and purposes of *Standards* and *Benchmarks*?

The main goal is scientific literacy for all. It is proposed that teachers know their students well enough to adapt curricula and teaching so that all students learn. This is not a lowering of standards, so that all can succeed, but rather a defining of standards so that all students accomplish the same learnings through various means. It is recognized (*Benchmarks*, p. 317) that "in the real and imperfect world, 'all' cannot possibly be absolute. When pressed for an operational definition, we have settled for 'at least 90 % of all future adults will have acquired at least 90 % of the knowledge and skills recommended in [*Science for all Americans*].'"

The *Standards* provide maps for:

- Students to establish their own goals for learning.
- Teachers to develop curricula with improved content, teaching methods, and assessment.
- Science supervisors to create coherent, integrated, long-term action plans.
- Institutions of higher education to refine programs for learning science through inquiry.
- School administrators to plan adequate resources for classrooms and professional development of teachers.
- Those who work in museums, zoos, and science centers to establish learning environments.
- Parents and community members to support excellence in education.
- The scientific community to provide unique support to teachers and students.
- Business and industry to provide guidance and resources in developing programs.
- Legislators to mold policies and funding priorities.

Benchmarks complement the *Standards* by addressing the content that students are expected to master at certain grade levels while giving coherence to the whole. *Benchmarks* can be used by:

- Teacher groups, administrators, school-board members, parents, interested citizens, and scientists to relate science literacy to the school setting.
- Committees of teachers and specialists to measure the curriculum and make improvements.
- Developers of curriculum to create materials.
- Test writers to develop appropriate materials and assessment techniques.
- Institutions of higher learning to prepared teachers.
- Researchers to pinpoint areas where further studies are needed.

Haven't we done this before?

Yes, but it didn't work. We need to do more than update science content. For this reason, the *Standards* emphasize teaching, assessment, program, and system as well as content. The *Standards* soften the boundaries between traditional subject matter categories and emphasize connections through conceptual themes such as systems, evolution, cycles, and energy. Also, the *Standards* require students to know fewer details; key concepts and thinking skills are emphasized over specialized vocabulary and memorization. The *Standards* introduce some relatively uncommon topics such as the nature of scientific enterprise, the history of science and technology, and how science, mathematics, and technology relate to society.

What's the real agenda behind these projects?

To some extent the *Standards* are reactions to dissatisfaction with the status quo. Earlier reforms did not address science literacy for all students and were considered by some to be ill articulated and short-sighted. *Benchmarks* and *Standards* represent efforts by diverse collaborative communities to plot a new course for science education and produce long term changes.

A key aphorism from Project 2061 is "less is more," since we cannot hope to teach the entire body of science content

knowledge. We must help students see the big picture and work with important constructs, models, and theories to develop both critical reasoning skills and deeper understanding of the processes as well as the essential content of science.

The movement to standards-based education is widespread. Many professional organizations representing different content areas have published, or are currently working on, national standards for their disciplines.

How do guidelines regarding science content compare between *Benchmarks* and *Standards*?

In addition to science, the *Benchmarks* describe goals in social studies, mathematics, and technology that are not included in the *Standards*. Otherwise, "the many individuals who developed the content standards sections of the...*Standards* made independent use and interpretation of the statements of what all students should know and be able to do that [were] published in *Science for All Americans* and *Benchmarks*" (NRC, 1996, p.15).

How might *Benchmarks* and *Standards* influence state and district curricula, and individual teachers?

Science for All Americans and the *Benchmarks* have strongly influenced state and local science curriculum frameworks. Educators and legislators at the state and local levels have acknowledged the need to reform science education and design curricula to help students understand essential concepts to become prepared to play a part in national and global economies. Teachers will be seeing curriculum guidelines and learning objectives that bear striking resemblance to those found in the *Benchmarks*. Since the National Science Teachers Association has endorsed the *Standards*, further adjustments to state and local frameworks are likely in upcoming years.

How do we measure progress towards achieving *Benchmarks* and *Standards*?

Since both the *Benchmarks* and the *Standards* are intended only as resources or guidelines from which to create coherent and comparable state frameworks and local curricula, it will be up to each state, district, school, and teacher to assess and evaluate achievement of their selected standards. The National Assessment of Educational Progress has been testing randomly selected students across grade levels and disciplines throughout the country for some years. It seems likely that some similar means of assessing the educational system and discipline-based knowledge and skills will continue.

The *Standards* include consideration of assessment issues. Project 2061 is also developing additional resources which will include various means of assessment for reaching specific benchmarks and overall scientific literacy.

How is professional development addressed by the *Benchmarks* and *Standards*?

The *Benchmarks* do not address professional development issues. The *Standards* include a chapter on professional development issues relating to (1) learning science, (2) learning to teach science, (3) learning to learn, and (4) the characteristics of quality professional development programs at all levels. A description of what is to be learned by educators, and how learning opportunities would be best designed, is provided for each of the four dimensions.

I already have learning objectives for my classes. Do I need to rewrite my lessons?

Teachers can use the *Benchmarks* to compare and contrast their lessons and objectives with those advocated by the reform movement. The *Benchmarks* provide what is needed to produce guidelines for what students should know at each level, grades K-12. It outlines what should be introduced, in all major disciplines, at every educational stage. The *Standards*, Chapter 7, emphasizes the importance for teachers to re-evaluate their objectives and teaching methods. Consistency, relevance, and integration of math and science are key issues under these standards.

Selected Internet Resources

National Academy Press
http://www.nap.edu/readingroom/books/nses/
Full text of the *Standards* online along with ordering information.

American Association for the Advancement of Science
http://www.aaas.org/project2061/2061main.htm
The homepage for Project 2061.

National Science Teachers Association
http://207.22.231.50/nsta_ssandc/
Information on the Scope, Sequence and Coordination project. The NSTA home page is: *http://www.nsta.org/*

Eisenhower National Clearinghouse
http://www.enc.org/online/
Online documents include many articles on education standards.

Related Materials
http://www.ed.gov/pubs/IASA/newsletters/standards/
Newsletters on issues in school reform, many relating to setting and meeting educational standards.

Developing Educational Standards
http://putwest.boces.org/standards.html
An annotated list of Internet sites with educational standards and curriculum frameworks documents by state or subject matter.

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American Association for the Advancement of Science. (1993). *Benchmarks for science literacy*. New York: Oxford University Press. [SE 058 900]

Biological Sciences Curriculum Study. (1995). *Redesigning the science curriculum: A report on the implications of standards and benchmarks for science education. A paper presented at the Rethinking the Science Curriculum: A Conference: Science Curriculum in an Era of Standards-Based Reform*, Cheyenne Mountain Conference Resort, Colorado Springs, CO.

National Research Council. (1996). *National science education standards*. Washington, DC: National Academy Press. [ED 391 690]

Rutherford, F.J. (1996). *A perspective on reform in mathematics and science education* [Monograph #2, Project 2061]. Columbus, OH: The Eisenhower National Clearinghouse for Mathematics and Science Education. [SE 057 921]

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DIGEST NO. 163

ERIC *Clearinghouse on Adult, Career, and Vocational Education*

Not Just a Number: Critical Numeracy for Adults

by Sandra Kerka

1995

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"It is difficult to understand why so many people must struggle with concepts that are actually simpler than most of the ideas they deal with every day. It is far easier to calculate a percentage than it is to drive a car." (Dewdney 1993, p. 1) To many people, the words "math" and "simple" do not belong in the same sentence. Math has such an aura of difficulty around it that even people who are quite competent in other areas of life are not ashamed to admit they can't "do" math. Innumeracy is more socially acceptable and tolerated than illiteracy (Dewdney 1993; Withnall 1995). Rather than discussing specific ways to teach math to adults, this *Digest* looks at emerging perspectives on numeracy and their social, cultural, and political implications as a context for new ways of thinking about adult numeracy instruction.

What Is Numeracy?

Numeracy involves the functional, social, and cultural dimensions of mathematics. Numeracy is the type of math skills needed to function in everyday life, in the home, workplace, and community (Withnall 1995). Although not always recognized as such, math is used in many everyday situations—cooking, shopping, crafts, financial transactions, traveling, using VCRs and microwave ovens, interpreting information in the media, taking medications. Different people need different sets of math skills, and their numeracy needs change in response to changes in life circumstances, such as buying a car or house or learning a new hobby (Gal 1993; Withnall 1995). Like literacy, numeracy "is not a fixed entity to be earned and possessed once and for all" (Steen 1990, p. 214), nor a skill one either has or doesn't have. Instead, people's skills are situated along a continuum of different purposes for and levels of accomplishment with numbers.

Beyond daily living skills, numeracy is now being defined as knowledge that empowers citizens for life in *their* particular society (Bishop et al. 1993). Thus, numeracy has economic, social, and political consequences for individuals, organizations, and society. Low levels of numeracy limit access to education, training, and jobs; on the job, it can hinder performance and productivity. Lack of numeracy skills can cause overdependence on experts and professionals and uncritical acceptance of charlatans and the claims of pseudoscience (Dewdney 1993). Inability to interpret numerical information can be costly financially; it can limit full citizen participation and make people vulnerable to political or economic manipulation. Like people with low levels of literacy, those lacking numeracy skills sometimes manage to avoid using math, relying on social support networks and coping tricks adapted to their environment (Steen 1990).

Math Myths . . . and Real-Life Numeracy

Why do people avoid math, and why does such a seemingly abstract subject arouse such high emotions? Many myths cloud the perception of math and numeracy (Bishop et al. 1993; Gal 1992; Willis 1992); the realities are discussed in this section.

Numeracy is culturally based and socially constructed. The math mystique is fed by stereotypes suggesting that white males and Asians are innately better at math and that math originated in Western civilization (Zaslavsky 1994). However, a new field—ethnomathematics—is emerging to refute these ideas. Researchers in this field are demonstrating that all cultures have math and use it (like language) as a system for making meaning of the world (***Numeracy in Focus*** 1995). Math principles and numeracy practices are not universal. Like literacy, numeracy is a set of cultural practices that reflect the particular values of the social, cultural, and historical context (Joram, Resnick, and Gabriele 1994). From the mental math of bazaar merchants to the navigational practices of South Pacific islanders to the astronomical calculations of ancient Mayans, "an enormous range of mathematical techniques and ideas have been developed in all parts of the world" (Bishop et al. 1993, p. 6). Some math activities are widely practiced across cultures—counting, measuring, locating, designing, playing (gambling, guessing), and explaining—but there are cultural differences in these "universal" activities (ibid.). Academic math may look the same in many societies because a competitive economic and political ethic demands a competitive math curriculum and dominant cultures may have imposed their math forms on other societies (ibid.).

Math reflects a particular way of thinking. Why is a computer program considered "real" math and the calculations in knitting a sock are not (Zaslavsky 1994)? Why do people think that math requires special intelligence or a "math mind"? As a particular way of thinking about the world, the math of a particular culture or group can be used as a gatekeeper to restrict access to professions, disproportionately keeping out nondominant groups such as women and minorities (Willis 1992). The behavior and attitudes of the dominant group become the norm against which others are measured. Those whose ways of thinking are attuned to this kind of math succeed where it is used in school and work. Those who think in other ways may be considered lacking in math ability, prompting Willis to ask whether math anxiety is innate or culturally induced. Because math (and numeracy) relates to specific cultural contexts, different cultural groups have different mathematical strengths. Although academic math is used to regulate access to higher education and occupations, academic aptitudes and skills are not necessarily those needed on the job or in life (Gal 1992).

Numeracy reflects cultural values. Math is often seen as abstract and neutral. In reality, it is a discourse—a way of talking or thinking—that people use to give meaning to the world and therefore it reflects a particular world view (***Numeracy in Focus*** 1995). For example, consumer education typically uses math to teach about credit, budgeting, and money management. Implicit in these uses of math are the assumptions of a market economy about value for money, investment, and consumption—a hidden curriculum whose values are not shared by all cultures (ibid.).

Numeracy is not just about numbers. Numeracy is a socially based activity that requires the ability to integrate math and communication skills (Withnall 1995). It is intricately linked to

language: words are the tools for translating numerical code and giving it meaning. Words can have everyday meanings as well as math meanings: for example, "and" is a conjunction, but in math it can also mean "plus." Some words are math specific: numerator, multiplicand, divisor. Interpretation of these words can cause confusion for people with low literacy levels or those attempting to become numerate in a second language.

Math evolves and changes. Despite the myth that mathematical principles are fixed for all time, new discoveries and theories about math continue to emerge. The uses of math in the world evolve as societal needs change. For example, computers are changing the need for some kinds of math skills and creating the need for others (Bishop et al. 1993).

Numeracy is about procedural, practical knowledge. This type of knowledge is perceived as less important or prestigious than abstract, theoretical knowledge. Practical, everyday math is considered the "lower end" of the mathematical hierarchy.

Numeracy involves different ways of solving problems. There is not just *one* way to get the *one* right answer. "The students found it helpful to discuss the sort of strategies they use in their real lives. The reinforcement of these strategies not being wrong gave them a lot of confidence. The students were convinced that there was only one way to carry out a process in maths" (Halliday and Marr 1995, p. 75). In traditional teaching, the teacher/authority hands down knowledge to blank-slate students who memorize multiplication tables and formulas and mechanically apply rules to solve problems. However, real-world problems are not as cut and dried as textbook math (Zaslavsky 1994). Intuition, mnemonics, tricks, and other "home-grown" problem-solving methods can complement abstract, formal approaches (ibid.).

Implications for Adult Education

Numeracy has an uncertain place in adult basic education. Instructors (often volunteers) are not always prepared to teach math and may even share some of their students' anxieties about it. Adult math instruction often focuses on preparation for the General Educational Development Test, which is based on high school math and perhaps "cannot serve as a complete road map for what adult numeracy provision should encompass" (Gal 1992, p. 22). The concepts of numeracy and math explored in this digest suggest that numeracy instruction should be based on the belief that *everyone* can do math and everyone uses numeracy practices that may go unrecognized. Taking a broad view of numeracy, educators take learners' existing reasoning skills, experience, and literacy and language abilities as the context for what learners need to learn (ibid.).

Literacy and numeracy should be linked and contextualized. Math is better understood if learned in familiar contexts that may provide cues to enhance problem solving. Familiar contexts may make math more accessible for those who have been alienated from it (*Numeracy in Focus* 1995). Having learners keep journals develops language and math skills together, helps them verbalize their thought processes, and enables them to express emotional reactions and feelings about math (Halliday and Marr 1995). Contextualized math applies a constructivist approach to learning, in which people relate new knowledge to what they already know, construct their own understanding, and make new meanings. This approach can help learners recognize the math characteristics of everyday situations (Gal 1992). Contextualized math can also help those learners with different ways of thinking. Individual learning style preferences should be considered in numeracy instruction (Zaslavsky 1994).

Adult educators should also consider their philosophical approach to education as well as numeracy. Critical numeracy means that learners empowered with functional skills can participate fully in civic life, skeptically interpret advertising and government statistics, and take political and social action. In opposition to the perspective that blames innumerate people for their own difficulties, educators can use language, literacy, and numeracy as vehicles for examining how society positions people and treats them differently (Shore et al. 1993).

Teaching from the perspective of adult education as a tool for social justice, instructors seek to change the system in which math serves as a barrier and to "equip people with the knowledge and tools that will enable them to examine and criticize the economic, political, and social realities of their lives" (Zaslavsky 1994, p. 217). An inclusive approach to instruction recognizes the different power relations in the way math and numeracy are viewed and used and seeks to give people a voice and more control over life circumstances (Shore et al. 1993). At the same time, educators can also empower learners with the numeracy skills needed to function in the technological society and workplace. As more learners acquire those skills, the cultural practices that are numeracy as well as the way math serves society can be changed.

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Digest

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Science Reasoning Ability of Community College Students

by Tronie Rifkin and John Harry Georgakakos

The development of science reasoning ability in individuals has been shown to be correlated with a multitude of variables, some related directly or indirectly to Piaget's cognitive theory of development (Inhelder and Piaget, 1958). Prior knowledge (Resnick and Gelman, 1985), processing capacity (Finegold and Mass (1985), cognitive styles (Stuessy, 1989), age (Helgeson, 1992), sex (Hernandez, Marek, and Renner, 1984), IQ (Lawson, 1982), culture (Cherian, Kibria, Kariuki, and Mwamwenda, 1988), SES (Acuna, 1983), majority/minority status (Lawson and Bealer, 1984), as well as a number of individual aptitude (Owen, 1987), achievement, and personality factors (Cloutier and Goldschmid, 1976) have all been found to influence the development of science reasoning. Many of these variables are pre-existing attributes students bring with them to the college campus. However, limited efforts have been made to discover what influences the development of science reasoning ability once the student enrolls in a course of study at a two-year institution.

This Digest presents a 1991 study of science reasoning development in students at Riverside City College. The results of the study point to the importance of science in the curriculum and of academic involvement in the sciences for the development of students' science reasoning ability.

Defining and Assessing Science Reasoning

Steussy (1984) presents a definition of science reasoning which stems from the concepts inherent in Piaget's formal operations stage. For Steussy,

"Scientific reasoning is used to denote consistent, logical thought patterns which are employed during the process of scientific inquiry that enable individuals to propose relationships between observed phenomena; to design experiments which test hypotheses concerning the proposed relationships; to determine all possible alternatives and outcomes; to consider probabilities of occurrences; to predict logical consequences; to weight evidence, or proof; and to use a number of instances to justify a particular conclusion" (p. 2).

This definition of science reasoning ability also parallels the approach taken by American College Testing (ACT) in the development of the Science Reasoning Test, the instrument used in this study. The test is one element of a battery of tests called the Collegiate Assessment of Academic Proficiency (CAAP), which measures selected general education skills typically obtained by students in the first two-years of college (ACT, 1991). The Science Reasoning Test was determined appropriate for this study specifically because many of the components found in Stuessy's (1984) definition of science reasoning mirror the content of the test. In addition, the test is designed to evaluate the development of science reasoning ability among students who matriculate through both science and non-science courses.

College and Sample

This study was conducted at Riverside City College (RCC), located in southern California. RCC offers comprehensive lower division, transfer-oriented curricula in the liberal arts and sciences along with a wide range of certified occupational programs and courses in continuing and developmental education.

This study reports the findings from two samples of RCC students. One sample, the college-wide sample, consisted of student volunteer subjects (N=843) from across the campus who were enrolled in one of 55 courses. The second sample, the science-oriented group, was a sub-set of the college-wide sample and made up of students who took at least one science course (N=494) at RCC.

Research Design

Students participating in the study were asked to complete the CAAP Science Reasoning Test twice. The pre-test was administered at the beginning of the 1991 fall semester. The post-test was administered at the conclusion of the 1991 fall semester.

Regression analyses were conducted to determine the factors that influence the development of science reasoning from pre-test to post-test.

Results from the College-Wide Sample

Analyses of the college-wide responses from pre- to post-test administration of the CAAP Science Reasoning Test offer the following results:

1. The science curriculum at the college serves as a positive influence for the development of students' science reasoning ability.

2. The positive effect of taking science courses on a student's science reasoning ability increases with the number of science units taken.

3. Calculus-based physics courses strongly influence the development of science reasoning ability.

4. Training in undergraduate psychology contributes positively to students' science reasoning development, while training in history appears to have the opposite effect.

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While reasons for this are not exactly clear, evidence indicates that the course contents and methods in psychology are more congruent with science offerings, in particular life sciences.

Results from the Science-Oriented Sample

The results for the science-oriented sample are similar to those for the college-wide sample. New and additional findings to highlight are:

1. A background in college humanities courses favorably influences science reasoning ability.

2. Physics courses contribute most to the development of science-reasoning.

3. The introductory chemistry course had a negative impact on science reasoning.

Conclusion

The present research was an exploratory study into the nature of science reasoning ability of community college students. It provides us with an understanding of the positive and negative influences on the development of science reasoning in community college students. It also provides a vivid demonstration of the applicability of the theory of student involvement and the importance of science in the curriculum.

During the past decade a number of researchers have placed high priority on increasing student involvement in learning as a means to academic achievement (Chickering & Gamson, 1987; Astin, 1987; The Study Group on the Conditions of Excellence in American Higher Education, 1984). According to Astin's theory of student involvement, "Students learn by becoming involved" (1987, p. 133-134). Quite simply put, the greater the amount of physical and psychological energy a student devotes to an academic experience the greater will be the dividends paid by that experience in terms of the talent development of the student. Applied to the development of science reasoning ability, student involvement implies that a student highly involved in the sciences will tend to develop energy to devote to studying and other experiences related to the sciences. The outcome of this involvement is an increase in science reasoning ability. This study discovered that this is indeed the case. Another conclusion drawn from this study is that science is a component of the curriculum that plays an important role in community college students' progress in developing reasoning ability--a very encouraging premise upon which to develop future curricula.

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This digest is drawn from "Impact of Differential College Environments on the Science Reasoning Ability of Community College Students: A Matriculation Study," a dissertation by John Harry Georgakakos, University of California, Riverside, 1995. Detailed information on this study including the research design and statistical analyses can be obtained from this source.

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Teaching Evolution in School Science Classes

David L. Haury

March 1996

ERIC Clearinghouse for Science, Mathematics, and Environmental Education DIGEST

Nothing in Biology Makes Sense Except in the Light of Evolution. T. Dobzhansky

What seemed like a provocative statement twenty years ago has become firmly established as a unifying idea in biology education. Speaking at a convention of the National Association of Biology Teachers, Dobzhansky (1973) pointed out the remarkable diversity of life and the striking unity of life, both made more intelligible by the theory of evolution. He went on to say:

> *Seen in the light of evolution, biology is, perhaps, intellectually the most satisfying and inspiring science. Without that light it becomes a pile of sundry facts—some of them interesting or curious but making no meaningful picture as a whole.*

Evolution was also identified as the unifying theme of biology by the American Society of Zoologists (Moore, 1984); the Society's project to improve teaching at the college level first focused on evolutionary biology.

More recently, the National Research Council (NRC) (1996) identified evolution as a major unifying idea in science that transcends disciplinary boundaries; a powerful idea to be used across all grade levels to guide instruction and align the curriculum. Biological evolution was also listed as one of the six content areas in the life sciences that are important for all high school students to study. Following are the concepts and principles associated with this content standard (p. 185):

- Species evolve over time. Evolution is the consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring.
- The great diversity of organisms is the result of more than 3.5 billion years of evolution that has filled every available niche with life forms.
- Natural selection and its evolutionary consequence provide a scientific explanation for the fossil record of ancient life forms, as well as for the striking molecular similarities observed among the diverse species of living organisms.
- The millions of different species of plants, animals, and microorganisms that live on earth today are related by descent from common ancestors.
- Biological classifications are based on how organisms are related. Organisms are classified into a hierarchy of groups and subgroups based on similarities which reflect their evolutionary relationships. Species is the most fundamental unit of classification.

The American Association for the Advancement of Science (AAAS) (1993) also identified the evolution of life as one of six major areas of study in the life sciences. In addition to the guidelines provided by the NRC standards (1996), the AAAS emphasized genetics and molecular biology, and has suggested that students also know that:

- Molecular evidence substantiates the anatomical evidence for evolution.
- Heritable characteristics can be observed at molecular and whole-organism levels—in structure, chemistry, or behavior.
- New heritable characteristics can result from new combinations of existing genes or from mutations of genes in reproductive cells.
- Life on earth is thought to have begun as simple, one-celled organisms about 4 billion years ago. (p.125, abbreviated)

Barriers to Meeting the Standards

A review of the literature on teaching and learning evolution (Demastes, Trowbridge, & Cummins, 1992) revealed several barriers, including certain intuitive ideas held by students, teleological and anthropomorphic thinking, and the influence of strongly held beliefs. These and other barriers have been discussed more fully at an evolution education research conference (Good and others, 1992), and in a special issue of the *Journal of Research in Science Teaching* (Volume 31, Issue 5, May 1994).

Whether one surveys school students, college students, teachers, or school administrators, findings reveal many misunderstandings regarding evolution, and substantial acceptance of pseudoscientific ideas (Brumby, 1984; Demastes, Settlage, & Good, 1995; Greene, 1990; Lord & Marino, 1993). In developing a teaching module on evolution, Bishop and Anderson (1986) identified several critical barriers that hinder student understanding, including:

1. Failure to make a distinction between the separate processes responsible for (a) the appearance of traits in a population and (b) the survival of such traits in the population over time.
2. Failure to recognize that natural selection is dependent on differences (in genetic traits and in breeding success) among individuals of a population.
3. Misinterpreting the nature of evolutionary change in populations, believing that all individuals change slowly over time. (pp. 1-3)

Instructional Strategies

Scharmann (1993) has provided some general guidelines for designing lessons based on a conceptual change approach to instruction. It seems particularly crucial that teachers find ways to enrich the teaching of evolution given both the conceptual difficulty students have and the limited attention given to evolution in textbooks (Rosenthal, 1985; Glenn, 1990; Skoog, 1979).

Hilbish and Goodwin (1994) have pointed out that the standard approaches to teaching natural selection through artificial examples and computer simulations show what could happen, not what is happening. They propose the use of real examples of natural selection in action, and they have described activities using the familiar dandelion. McComas (1991) also emphasized the importance of direct inquiry and has provided an annotated list of activities from non-textbook sources.

For teaching about human evolution, Offner (1994a, 1994b) has described activities using maps of human chromosomes to illustrate mechanisms of evolutionary change. Gipps (1991) described using casts of anthropoid skulls, and Riss (1993) suggested a related activity using photocopies of skulls.

The "Creationist" Resistance

Perhaps most unsettling is the finding that a substantial proportion of high school biology teachers hold pseudoscientific beliefs, with nearly 40% thinking "there are sufficient problems with the theory of evolution to cast doubts on its validity" (Eve & Dunn, 1990). Those holding such views seem particularly vulnerable to the influence of various groups wishing to reduce attention to evolution in science classes. The teaching of evolution has been a source of controversy in American schools throughout the century (Larson, 1985; Nelkin, 1982), and advocates of evolution have continued to offer rebuttals to creationist claims (Berra, 1990; Ruse, 1982). In the early 1980s, the controversy led to a conference to clarify issues (Zetterberg, 1983). Though many scientific, religious, and educational

organizations explicitly support the teaching of evolution (McCollister, 1989), many individuals also endorse the importance of upholding the integrity of science while also acknowledging the validity of deeply held religious beliefs (Hanson, 1986). Educators wanting more information supportive of evolution education from a Christian perspective may be interested in a resource packet, "Creationism, the church, and the public schools," available from the United Church of Christ Resources, Inc. (call 1-800-537-3394), or a booklet by the American Scientific Affiliation (ASA) entitled, "Teaching science in a climate of controversy." The ASA is an organization of Christians with academic degrees in science that takes no official position, but supports the teaching of evolution as science. Contact the ASA at P.O. Box 668, Ipswich, MA 01938-0668 (Call (508) 356-5656; E-mail: asa@newl.com)

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Where to Go for Help

Information Centers

Educational Resources Information Center (ERIC). The ERIC database includes bibliographic information for approximately 800 items on the teaching and learning of evolution, from journal articles about classroom activities to research findings about student conceptions. Search the database using descriptors such as: evolution, biology, science education, science activities, science instruction, science curriculum, scientific concepts, genetics, misconceptions, creationism, and controversial issues course content For more information, contact ERIC/CSMEE, (800) 276-0462 or (614) 292-6717; Fax: (614) 292-0263; E-mail: ericse@osu.edu.

National Center for Science Education (NCSE). The NCSE sponsors several activities to support the teaching of evolution. The organization publishes a quarterly newsletter for members, and a semi-annual journal, *Creation/Evolution*. NCSE also distributes many books and sponsors many seminars and workshops. For more information, contact NCSE, P.O. Box 9477, Berkeley, CA 94709. Telephone: (800) 290-6006 or (510) 526-1674; Fax: (510) 526-1675; E-mail: ncse@crl.com.

Internet Resources

Harvard's *Evolution Virtual Library*
http://golgi.harvard.edu/biopages/evolution.html

This World Wide Web server provides an extensive collection of Internet links to organizations, publications, academic programs, museums, collections, and exhibits. This is a good place to start a search for current information relating to evolution.

The Talk.Origins Archive
http://rumba.ics.uci.edu:8080/origins/faqs.html

This home page presents files from a UserNet group, talk.origins. Though strongly oriented toward issues relating to evolution and creation, this site presents some very readable essays on evolutionary theory, findings, and methods.

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Goal 6: Adult Literacy and Lifelong Learning

By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

Objectives:

- Every major American business will be involved in strengthening the connection between education and work;
- All workers will have the opportunity to acquire the knowledge and skills, from basic to highly technical, needed to adapt to emerging new technologies, work methods, and markets through public and private educational, vocational, technical, workplace, or other programs;
- The number of quality programs, including those at libraries, that are designed to serve more effectively the needs of the growing number of part-time and midcareer students will increase substantially;
- The proportion of the qualified students, especially minorities, who enter college, who complete at least two years, and who complete their degree programs will increase substantially;
- The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially; and
- Schools, in implementing comprehensive parent involvement programs, will offer more adult literacy, parent training and life-long learning opportunities to improve the ties between home and school, and enhance parents' work and home lives.

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DIGEST NO. 173

ERIC

CELEBRATING 30 YEARS · 1966 1996
Clearinghouse on Adult, Career, and Vocational Education

by Joe E. Heimlich
with Jason Diem and Elva Ferrell

1996

EDO-CE-96-173

Adult Learning in Nonformal Institutions

Museums, zoos, nature centers, science centers, aquariums, and other similar institutions provide a tremendous opportunity for lifelong learning in a relatively nonthreatening setting for most adults (Schroeder 1970). Many of these attractions and museums include education as a part of their missions (see, for example, Allmon 1994; Chizar, Murphy, and Illiff 1990; Conway 1982) and the popularity of these places as providers of both recreation and education is well established (Chobot 1989). This *Digest* explores some of the central concepts of adult learning in these settings. A brief discussion of nonformal learning and the adult visitor lays the foundation for the examination of ideas in the literature on (1) what is educational in attractions, (2) opportunities and challenges to education in these settings, and (3) the application of adult learning theory to zoo, museum, center, and attraction education.

Adult Visitors and Nonformal Learning

Nonformal learning is often defined by activities outside the formal learning setting, characterized by voluntary as opposed to mandatory participation (Crane et al., 1994). Mocker and Spear (1982) offer a taxonomy of adult learning wherein nonformal learning is identified as learners holding the objectives for learning with the means controlled by the educator or organization. Maarschalk (1988) contrasts nonformal learning (i.e., outside formal settings—such as field trips and museum visits) with informal learning (i.e., that which grows out of spontaneous situations).

In zoos, museums, nature centers, and attractions, adult learning can range from formal through nonformal to informal. Workshops, lectures, classes, and educational "shows" are some of the common formal adult learning programs; tours, informational signage, exhibits/interactive displays, and demonstrations are often considered nonformal learning constructed by the education staff; the individual visitor and the setting create informal learning situations (Diem 1994).

For whom are these opportunities constructed? In a study of zoo visitors, Conway (1982) found that between 55-70% of all zoo visitors are adults. Hundreds of millions of people visit museums, zoos, nature centers, science centers, and other attractions (Falk and Dierking 1992). In North America, for example, over 100 million people visit zoos and aquariums each year (Eaton 1981; Howard 1989; Marshall 1994), and over 500 million visit museums (Naisbitt and Aburdene 1990). This translates to a tremendous population of learners. Adults more often than children suggest the visit (Cheek, Field, and Burdge 1976) and are also the societal decision makers whose actions directly affect the attraction, whether the decision is simply to visit or to support funding for expansion or renovation (Diem 1994). It makes sense, therefore, to consider how better to serve the learning needs of these adult visitors.

Not all visitors come for the purpose of learning. Beer (1987), for example, found slightly over half the visitors came to a museum with learning as a purpose. Other researchers (e.g., Hood 1983; Miles 1986) found much lower numbers. In a study by Hood and Roberts (1994), younger adult visitors had greater social goals in attendance, and, of the 18- to 34-year-olds, fewer than one-third attended for family outings. Studies such as these suggest there are many adult visitors attending for primarily social reasons and that learning may need to be constructed in a manner that supports the social activity.

Learning, however, is not restricted to those who attend with the intent of learning. One study in an historical center found most visitors could recall historical facts from the exhibits and could also assign meaning to the exhibits (Boggs 1977). In another study, the knowledge gain of adult visitors was no greater for those who came to learn than those who came for social reasons (Miles 1986). Overall, however, the research in this arena suggests that adult visitors rarely demonstrate significant recall of facts and concepts encountered during visits (Falk and Dierking 1992), which creates both opportunities and challenges for the institutions.

Educational Systems

Many nonformal organizations or institutions have education staff or curators who oversee the education and outreach functions. Often supported by docent or volunteer corps, these departments develop signage, exhibits (including interactives and immersion exhibits), outreach, visitor services, guided tours, program/show notes, workshops, lectures, shows, and speakers bureaus. Often small in personnel numbers, these departments frequently are responsible for how people experience the visit.

People come to these places to see the "stuff" (Watkins 1994). The educational opportunities arise out of the very human reaction to these real things—plants, animals, art, natural wonders, or collections (Resnicow 1994). The nature of an attraction, however, provides the educators with but an instant to capture, hold, and engage attention (Roberts 1994). The challenge, then, is to use the nature of the attraction to turn what may appear to be entertainment into a tool with which to encourage visitors in terms comfortable to them so they may be drawn to deeper levels of involvement (Resnicow 1994).

Applying Adult Learning Theory

Adults come to the learning with an array of experiences and lifelong constructed knowledge. Often, lifelong learning centers such as zoos, museums, and science or nature centers must correct misinformation before new or desired learning can occur (Borun, Massey, and Lutter 1992). Within the visit, the free choices of attendance and learning create a fundamental dependency on addressing the interests and the beliefs of the adult learner (Falk and Dierking 1992).

Destination sites are often viewed as having the potential to introduce people to art, ideas, history, nature, and knowledge. These sites, however, can do more than create interest or inspire curiosity (Watkins 1994). They can allow visitors to become engaged with ideas, even when the visit is for social purposes (Lucas 1991).

To engage the adult visitor effectively, education programs can use traditional adult education principles to enhance the visit for the purpose of learning. One of Knowles' (1970) assumptions of the adult learner is that learners seek information that fits their societal roles. Visitors to attractions consciously or subconsciously seek to learn about themselves and their cultural heritage (Kramer 1994). Adults visit those places where they feel comfortable, places that are nonintimidating, user friendly, and speak in the language of the uninitiated public (Resnicow 1994).

Attractions themselves present experiences; it is the nature of an experience to be determined and interpreted largely by the individual (Boud, Keough, and Walker 1985). The education staff are ultimately responsible for creating the opportunities for learning that may arise from the experience of the visit. The fields of interpretation and museum curation continually assess the impact of placement of kiosks, signs, interactives, and displays on learning.

Increasingly, institutions are using interpretive layering, which provides information in small, layered levels so that visitors can choose to absorb the essence of the exhibit without filtering through complex descriptions or discussions. Learners can engage in giving longer time to selective data or discussion. A trend in exhibit interpretation is in simplifying information to reduce the cognitive difference between the actual scholarship source and the lay visitor (Watkins 1994). Posing issues as questions encourages visitors to confirm propositions actively in the exhibit with the goal being that the visitor gains ownership of ideas the educator seeks to cover or to share with the visitor (Spicer 1994).

Conclusion

Whether the purpose of the visit is social or educational, adult visitors attend attractions with an overall positive, affective attitude. Learning is a natural lifelong process, and learning episodes can vary from incidental learning to intentional learning projects (Tough 1972). Learning in attraction settings can rely on the natural occurrence of the process of learning and can be enhanced with guidance and facilitation through construction of learning opportunities by educators (Heimlich 1993).

The haptic need for adults to experience something physically (touch, feel, smell, etc.), rather than read or hear about it, is a major reason nonformal institutions exist (Allmon 1994). Natural learning, as described by McCombs et al. (1991), includes action, volition, internal mediation, and individual meaning making. In the nature of their attraction, nonformal institutions provide a setting where this natural learning can occur. Ultimately, the role of the educator in this setting is to enhance the attraction and help guide the adult visitor to new levels of understanding and action.

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DIGEST NO. 168

ERIC CELEBRATING 30 YEARS - 1966-1996
Clearinghouse on Adult, Career, and Vocational Education

1996

by Sandra Kerka

ED0-CE-96-168

Distance Learning, the Internet, and the World Wide Web

In the beginning was the word—the printed word. In its earliest form, distance education meant study by correspondence, or what is now called "snail mail." As new technologies developed, distance instruction was delivered through such media as audiotape, videotape, radio and television broadcasting, and satellite transmission. Microcomputers, the Internet, and the World Wide Web are shaping the current generation of distance learning, and virtual reality, artificial intelligence, and knowledge systems may be next. Some define distance education as the use of print or electronic communications media to deliver instruction when teachers and learners are separated in place and/or time (Eastmond 1995). However, others emphasize distance *learning* over education, defining it as "getting people—and often video images of people—into the same electronic space so they can help one another learn" (Filipczak 1995, p. 111), or "a system and process that connects learners with distributed resources" (ibid., p. 113). These two definitions imply learner centeredness and control.

Typical audiences for earlier generations of distance education were adults often seeking advanced education and training at home, on the job, or in the military whose multiple responsibilities or physical circumstances prevented attendance at a traditional institution (Bates 1995). Now anyone is potentially a distance learner, a concept that has implications for the organization of educational institutions and for teaching. This *Digest* focuses on some of the newest methods of distance learning (DL) using the Internet and the Web. It highlights some of the issues that could profoundly change the delivery of adult, career, and vocational education.

Distance Learning in Cyberspace

Perhaps more than any other distance media, the Internet and the Web help overcome the barriers of time and space in teaching and learning. Educational uses of the Internet are burgeoning. The University of Wisconsin-Extension's Distance Education Clearinghouse lists numerous institutions offering online instruction <http://www.uwex.edu/disted/home.html> and corporate training is featured on AT&T's Center for Excellence in Distance Learning website <http://www.att.com/cedl/>. *Internet World*'s October 1995 issue gives examples of "The Internet in Education," including online degree programs offered by traditional institutions such as Penn State and Indiana University as well as nontraditional entities such as University Online and the Global Network Academy. DL on the Internet usually takes one of the following forms (Wulf 1996): (1) electronic mail (delivery of course materials, sending in assignments, getting/giving feedback, using a course listserv, i.e., electronic discussion group); (2) bulletin boards/newsgroups for discussion of special topics; (3) downloading of course materials or tutorials; (4) interactive tutorials on the Web; (5) real-time, interactive conferencing using MOO (Multiuser Object Oriented) systems or Internet Relay Chat; (6) "intranets," corporate websites protected from outside access that distribute training for employees; and (7) informatics, the use of online databases, library catalogs, and gopher and websites to acquire information and pursue research related to study.

Examples of the use of these modes include the following. High school students with disabilities in Project DO-IT (Disabilities, Opportunities, Internetworking, Technology) connect with the University of Washington (UW) to receive instruction via e-mail, join worldwide discussion groups, and access online resources (Burgstahler 1995). Also at UW, rehabilitation therapists learn about adaptive computer technology through videotapes and an Internet class discussion group (ibid.). The Distant Mentor project pairs workplace experts with school-to-work "apprentices" online; they can also simulate work environments through desktop software with an audio channel connected through the Internet (Dede 1996). At Carnegie-Mellon University, the Virtual Corporation simulates a work setting for business students (ibid.). A career counselor offers group and individual online conferences, a listserv, and a database of resumes and resources for clients (Sherman 1994). CUSeeMe software enables technology teacher education supervisors to observe student teachers using a desktop videoconference through the Internet ("Agricultural Education" 1996).

Advantages of delivering distance learning on the Internet include the following (Bates 1995; Eastmond 1995; Wulf 1996): (1) time and place flexibility; (2) potential to reach a global audience; (3) no concern about compatibility of computer equipment and operating systems; (4) quick development time, compared to videos and CD-ROMs; (5) easy updating of content, as well as archival capabilities; and (6) usually lower development and operating costs, compared to satellite broadcasting, for example. Carefully designed Internet courses can enhance interactivity between instructors and learners and among learners, which is a serious limitation of some DL formats. Equity is often mentioned as a benefit of online learning; the relative anonymity of computer communication has the potential to give voice to those reluctant to speak in face-to-face situations and to allow learner contributions to be judged on their own merit, unaffected by "any obvious visual cultural 'markers'" (Bates 1995, p. 209). The medium also supports self-directed learning—computer conferencing requires learner motivation, self-discipline, and responsibility.

As with any medium, there are disadvantages. At present, limited bandwidth (the capacity of the communications links) and slow modems hamper the delivery of sound, video, and graphics, although the technology is improving all the time. Reliance on learner initiative can be a drawback for those who prefer more structure. Learner success also depends on technical skills in computer operation and Internet navigation, as well as the ability to cope with technical difficulties. Information overload is also an issue; the volume of e-mail messages to read, reflect on, and respond to can be overwhelming, and the proliferation of databases and websites demands information management skills. Access to the Internet is still a problem for some rural areas and people with disabilities. Social isolation can be a drawback, and the lack of nonverbal cues can hinder communication. Although the Internet can promote active learning, some contend that, like television, it can breed passivity (Filipczak 1995). The next section takes a closer look at distance learning processes.

Distance Learning Processes

Multimedia/hypermedia contexts such as the Web support constructivist approaches to learning, which are based on the belief that individuals construct their own understanding of the world as they acquire knowledge and reflect on experiences. Dede (1996) describes how carefully designed online learning can assist the construction of knowledge by showing learners the links among pieces of information and supporting individual learning styles.

When Wiesenberg and Hutton (1995) conducted a continuing education program using computer conferencing, they found it necessitated two to three times more delivery time. Learners appreciated the convenience of asynchronous communication, but many were anxious about putting their written words "out there." The course was more democratic but less interactive than expected, and the instructors recommended giving learners a better orientation to the online learning environment, providing technical support, and fostering self-directed learning and learning-to-learn skills.

Eastmond (1995) highlights the ways that computer discussion both requires and facilitates learning-how-to-learn skills, such as locating and accessing information resources, organizing information, conducting self-assessment, and collaborating. Adult learners in his study found the following strategies critical to success in electronic learning: becoming comfortable with the technology, determining how often to go online, dealing with textual ambiguity, processing information on or off line, seeking and giving feedback, and using one's learning style to personalize the course.

The Social Nature of Distance Learning

A common stereotype is "the loneliness of the long distance learner" (Eastmond 1995, p. 46). Learning at a distance can be both isolating and highly interactive, and electronic connectedness is a different kind of interaction than what takes place in traditional classrooms; some learners are not comfortable with it. Lack of nonverbal cues can create misunderstanding, but communications protocols can be established and relationships among learners developed. Because humans are involved, social norms do develop in cyberspace, but they require new communications competencies (ibid.). Online courses often feature consensus building and group projects, through which learners can develop skills in collaborating with distant colleagues and cooperating with diverse individuals. Such skills are increasingly needed in the global workplace (Dede 1996).

Answering charges that computer learning environments cannot duplicate the community of the classroom, Cook (1995) argues that the assumption of a sense of community in traditional classrooms may be false. If community is defined as shared interests, not geographic space, electronic communities are possible. Wiesenberg and Hutton (1995) conclude that building a learning community is of critical importance to the creation of a successful virtual classroom. Dede (1996) agrees that, "to succeed, distributed learning must balance virtual and direct interaction in sustaining communion among people" (p. 199).

Strategies for Distance Learning

Filipczak (1996) notes that DL on the Internet can be cheaper, faster, and usually more efficient than other learning modes, but not necessarily more effective. As Dede (1996) puts it, "access to data does not automatically expand students' knowledge; the availability of information does not intrinsically create an internal framework of ideas" (p. 199). To help learners make effective use of distance learning methods, skilled facilitation is essential. Rohfeld and Hiemstra (1995) suggest ways to overcome the challenges of the electronic classroom: (1) establish the tone early in the course; (2) to overcome the text-based nature of online discussion and to build group rapport and cohesion, introduce participants to each other, match them with partners, and assign group projects; (3) offer training and guidelines to help learners acquire technical competence and manage discussions; (4) provide a variety of activities, such as debates, polling, reflection, and critique; and (5) use learning contracts to establish goals for participation. The following strategies are intended to make distance learning more effective (Bates 1995; Dede 1996; Eastmond 1995; Filipczak 1995):

- Understand the technology's strengths and weaknesses
- Provide technical training and orientation
- Plan for technical failures and ensure access to technical support
- Foster learning-to-learn, self-directed learning, and critical reflection skills
- Develop information management skills to assist learners in selection and critical assessment
- Mix modes—e.g., combine e-mail discussion with audio/video methods to enhance the social aspect
- Structure learner-centered activities for both independent and group work that foster interaction

In the end, the word is still with us. The way it is transmitted and received is changing. Educators can play a role in the development of a "vital form of literacy" (Dede 1996, p. 200): the transformation of information into knowledge. The choices they make can also help determine which of these possibilities come to pass: (1) distance technologies as an add-on to existing institutions; (2) "knowledge in a box," impersonal, individualized, and socially isolating; or (3) a networked learning society that keeps human relationships at the center of learning (Bates 1995).

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Facilitating Postsecondary Outcomes for Mexican Americans

by Judith LeBlanc Flores

ERIC DIGEST

Postsecondary outcomes for Mexican Americans have not improved measurably since the mid-1980s. Although Hispanic students are attending and graduating from college in greater numbers, much of this growth is linked directly to their population growth. Despite increased representation among undergraduates and college graduates, Hispanic students complete college at a lower rate than the general student population: 41 percent of 4-year institutions' Hispanic entrants graduate, compared with 54 percent of all entrants (Carter & Wilson, 1993).

This digest will address those factors that may facilitate postsecondary outcomes for Hispanic students, particularly Mexican-American students, who enroll in U.S. community colleges and 4-year institutions. Factors examined include preparation for college; transfer from community colleges to 4-year colleges; retention and completion of 4-year degrees; financial aid; and gender, culture, and language issues.

Preparation for College

Recent research (Quality Education for Minorities Project, 1990; Rendon & Nora, 1988) suggests that institutional practices have much to do with minorities' lack of postsecondary participation: employing differential tracking; channeling minority students away from activities that foster inquiry and creative thinking skills; segregating them into minority schools; and failing to provide a support system or counselors and teachers with whom students can identify.

Other research has looked for ways to address these problems. Sosa (1990) reported on several innovative community projects, including group tutorials and parent-school partnerships, that promote academic achievement and aid Hispanics in preparing for college. Mehan and Villanueva (1993) reported on an untracking experiment involving 253 students in 14 high schools in the San Diego Schools system. Low- and high-achieving students were placed in the same rigorous academic program for the college bound, for 3 years. Among the Latino students involved in the experimental program, 44 percent enrolled in 4-year colleges.

Even among those who complete high school, many students do not realize they are capable of earning bachelor's degrees (Rendon, Justiz, & Resta, 1988). This circumstance suggests that college recruiters should seek out and encourage high school students who have not considered attending college (Valdivieso, 1990).

Community College Articulation on Transfer with 4-Year Institutions

Of the Hispanic students who go on to postsecondary education, most enroll in two-year institutions. For most Americans, however, the educational gateway to opportunity is a 4-year college degree. Although there is little documentation on the effects of community college attendance in terms of educational outcomes and long-term economic returns, one statistic seems significant: Transfer rates often fall lower than 10 percent for minority students (Rendon & Nora, 1988). A comprehensive study of community colleges with large Hispanic enrollments in Texas, Arizona, and California (Rendon, Justiz & Resta, 1988) revealed a number of barriers for students in the transfer process: (a) unfamiliarity with the costs/benefits of the higher education system; (b) unwillingness to leave community and families; (c) difficulty meeting timelines; (d) lack of family involvement in education; (e) having to work to help the family survive; (f) not knowing they were capable of earning degrees; (g) not understanding the consequences of changing programs; (h) financial pressures; (i) minimal faculty-student interaction; and (j) weak community college articulation with senior institutions, both in terms of exchanging data about transfer students and comparing curriculum and expectations.

Communication problems abound. Turner (1988) noted that the part-time and transitory nature of commuting students poses difficulties in making students aware of opportunities and resources. College catalogs alone are often a poor source of information for students faced with multiple barriers at senior institutions: application paperwork, tuition and moving costs, assessment policies, space limitations in required courses, and variations in university general education requirements (Rendon & Nora, 1988).

Retention and 4-Year College Completion

Fiske's (1988) survey of the undergraduate Hispanic experience at 10 universities across the nation suggests that for many Hispanic students the most serious problems are not those they confront getting into college, but those they face once they get there. The problems range from the anxiety of breaking close family ties to the loneliness and tensions inherent in finding their way in large, impersonal, fast-paced institutions. Students often feel alienated, discouraged, and overwhelmed.

To help students overcome such problems, inquiries by Fiske (1988), Carter and Wilson (1993), Rendon and Nora (1988) and Valdivieso (1990) suggest students need (a) adequate support systems; (b) encouragement, guidance, and counseling; (c) ethnic minority organizations and cultural service centers; (d) high levels of involvement in college life; and (e) favorable relationships with faculty members and academic advisors.

Based on Tinto's (1987) Student Attrition Model, Nora (1987a) studied Chicano students enrolled part-time or full-time in three community colleges in southern Texas with large Hispanic populations, and Flores (1989) studied Hispanics (mostly Mexican Americans) enrolled full-time at two comprehensive universities in Oklahoma. Both found that Mexican-American students who made better grades and received more precollege encouragement tended to earn some form of credential. In Flores' study, Hispanic-American students who were competent members of *both* the social and academic communities tended to persist to degree completion.

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Financial Aid

Finances and financial aid are first-order concerns of minority students (Cibik & Chambers, 1991). Fields (1988) reported on Hispanic-origin students nationwide and found that "expanded financial aid, better information about it, and simplified financial aid processing were among the most important things the campus might do to help them remain in college" (p. 25). This finding is supported by Nora (1987b), who reported that Hispanic community college students who received high levels of noncampus and campus-based financial aid were enrolled in more semesters, earned more semester hours, earned high grade point averages, and received some form of college credential.

Hispanic Women and the Gender Gap

The gender gap currently seems to favor Hispanic women. Carter and Wilson (1993) report that the gender gap in high school completion continues to be largest among Hispanics—52 percent of the men graduated in 1992, compared to 62.8 percent of the women. Between 1991-1992, Hispanic women also earned a larger increase than Hispanic men in associate degrees (13.7 percent vs. 3.5 percent), bachelor's degrees (14.2 percent vs. 8.1 percent), master's degrees (8 percent vs. 2.2 percent), and first professional degrees (4.5 percent vs. 3.9 percent) (pp. 16-17).

Of the 200 Chicano women students from the University of Texas-El Paso in Young's (1992) study, 47 percent were majoring in fields traditionally dominated by men (e.g., business, engineering, natural sciences) (p. 348). The increase in the number of bachelor's degrees awarded to Hispanics in engineering is almost entirely from women's achievement and has tripled since 1981 (Carter & Wilson, 1993).

Despite gains, Mexican-American women still face many obstacles: financial constraints, the number of hours per week spent on the job, limited family support or family opposition, difficulty with studies or too little time to study, and interruptions to attend to family matters at home (Young, 1992).

Cultural Heritage and Language

"General education program curricula rarely reflects Hispanic interests or Latino culture" (Fiske, 1988, p. 30). Yet Hispanic-American students who completed their degrees at the University of Oklahoma and Oklahoma State University were more likely to have a balanced bicultural orientation and retain the Spanish language (Flores, 1989; 1992). Not long ago, being a native Spanish speaker was viewed as a deficit. Now, as Garcia's (1992) review found, being bilingual is seen by many educators as linguistic enrichment with possible cognitive advantages.

Young (1992) noted that 40 percent of the Chicano students at the University of Texas-El Paso think it is important that the college curriculum contain material about the heritage of Mexican Americans, and 65 percent reported they speak Spanish well. With the rise of Hispanic enrollment, some colleges and universities offer Spanish language courses for native speakers (Collison, 1994) and at Kean College, for example, the combination of Spanish-speaking programs (SSP) and ESL provides a dual track to academic success. "While Spanish-speaking students enroll in ESL courses in order to develop their English proficiency, they simultaneously earn college credit by taking general education courses taught in Spanish through SSP" (Rosenthal, 1990, p. 26).

Recommendations for Facilitating Outcomes

Research, as outlined above, has pointed to some important factors that can affect postsecondary outcomes for Mexican-American and other minority students. To further facilitate outcomes, there is a need to examine (a) regional differences and similarities among Mexican-American and other Hispanic student populations, (b) steps taken by states and institutions to promote precollege academic progress and community college transfers to 4-year institutions, (c) gender gap issues, (d) the influence of culture and language on college achievement, and (e) ways to provide financial aid that encourage increased on-campus interaction and full attention to studies.

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NO. 162

ERIC Clearinghouse on Adult, Career, and Vocational Education

Inclusive Adult Learning Environments

by Susan Imel

1995

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I've just changed completely from when I first (entered school). I used to take this little African body and force it into this European square peg. And you know, it didn't work. I kept trying to do it and trying to change who I was and tried to fit in. . . . When I finally decided to be the person that I am, I started feeling more comfortable. (Taylor 1995, p. 84).

Ever since Malcolm Knowles (1970) introduced the concept of *learning climate*, adult educators have been aware of how the environment affects learning. As reflected in the words of the returning woman student quoted here, however, adults may still find some learning environments to be inhospitable. Rather than learners trying to change who they are so that they will "fit in," adult educators must create learning environments in which all learners can thrive. Following an overview of changing conceptions of adult learning environments, this ***ERIC Digest*** describes what it means to create an inclusive learning environment, examines some related issues, and presents some guidelines for structuring inclusive learning environments.

Adult Learning Environments: Changing Conceptions

In introducing the concept of learning environment, Knowles (1970) suggested that activities conducted prior to and during the first session could "greatly affect it" (p. 270), including promotional materials and announcements; activities designed to assess learner needs prior to the event; physical arrangements; and the opening session, including greeting, learning activity overview, introductions, and treatment by the instructor. More recently, adult educators are recognizing that factors in the learning environment related to psychological, social, and cultural conditions also exert a powerful influence on the growth and development of learners (Hiemstra 1991).

Current discussions on learning environments have broadened to include the need to confront issues of sexism and racism (Hayes and Colin 1994), interlocking systems of power and oppression (Tisdell 1993b), and social justice (Shore et al. 1993). This broader understanding of factors that affect learning is leading adult educators to consider how they can create environments that address "issues of power that are inherent in cultural diversity, whether that diversity is based on nationality, race, class, gender, sexual orientation, disability or some other factor" (Merriam 1993, p. 58).

Developing Inclusive Learning Environments

How can inclusive learning environments be created? Tisdell (1995) suggests that a learning environment needs to attend to inclusivity at three levels. A truly inclusive learning environment should "(1) reflect the diversity of those present in the learning activity itself in the curriculum and pedagogical/andragogical style; (2) attend to the wider and immediate institutional contexts in which the participants work and live; and (3) in some way reflect the changing needs of an increasingly diverse society" (p. 4). Because learners "do not live in a vacuum" (ibid.), addressing institutional and societal levels is important, but the most significant level is the selection of appropriate materials and methods that address the characteristics of learning group members.

Addressing the diversity of learners by selecting appropriate curriculum and course content is a critical aspect of inclusiveness. The understanding that all groups—including those that are dominant—have culture or ethnicity must form the basis for the curriculum (Shore et al. 1993). The knowledge base of all groups needs to be represented in the curriculum (hooks 1994). Although "many groups share in the subordinate social status and selective discrimination that 'minorities' often implies, each cultural group has its own history, values, and customs" (Ross-Gordon 1993, p. 53), and each must be considered in choosing resources and learning activities. It is a mistake, for example, to assume that general information on women also applies to women of color.

Based on recent research and theory building, a different conception of pedagogy is emerging, one that is appropriate for an inclusive learning environment. Termed "new pedagogy" by Taylor and Marienau (1995), this way of teaching is more inclusive and it incorporates (1) the validity of the student's experiences as well as support for the emerging self as a focus of education; (2) the contextual nature of knowledge, including the relationship between the learner and his or her knowledge base; and (3) the notion that learning can be a transformative process. The new pedagogy employs diverse practices such as reflective journal writing, storytelling, role playing, small group discussion, and metaphor analysis (Caffarella 1992), and it addresses the learning styles and preferences of groups represented in the learning activity.

No one definition or prescription for inclusiveness will fit every learning environment. What happens in any learning environment in terms of inclusiveness will depend on the adult educator's personal experiences with various systems of privilege and oppressions, the educational context, and the participants and their characteristics (Tisdell 1995).

Some Related Issues

Working toward the goal of creating an inclusive learning environment may give rise to some issues, especially those related to power and control. At the most basic level are the traditional—but unequal—power relations that exist between learners and teachers. In conventional educational settings, teachers and learners have expectations about their roles; the teacher is seen as the source of knowledge and consequently is ascribed power; the learner is perceived as the receiver of the teacher's knowledge, sometimes described as an empty vessel waiting to be filled. However, inclusive learning environments work to "dismantle ways of operating . . . that unnecessarily privilege teachers' formal knowledge and experience" (Shore et al. 1993, p. 12), and this power shift can be unsettling for both teachers and learners.

Power relations between and among learners are also likely to change as the environment becomes more inclusive. Groups of learners or individuals who may have felt silenced previously

will feel freer to become part of the discussions and to challenge existing truths and biases. As differences are recognized and more voices are heard, the notion that a learning setting should be a "safe harmonious place" will be tested (hooks 1994, p. 30).

The need to maintain a balance between being learner centered (placing learners at the center of a learning activity) and learner positive (providing positive experiences for the learner) can also be an issue in inclusive learning environments. Related to questions of power and control, this issue refers to the need to examine the extent to which being "learner centered" may diminish the efforts to be inclusive. Although learner centeredness is a hallmark of adult education, and "may help resolve some of the authority issues inherent in . . . teacher-centered programming," it tends to make "invisible certain kinds of relationships among students, among workers, and among students and workers . . . [especially those based on] differences in race, sex, class background, abilities, sources of income, immigration status, and so on" (Lloyd, Ennis, and Atkinson 1994, p. 25). Tisdell (1993a) shows how the dissonance between being learner centered and learner positive might occur in a description of how one teacher's efforts to create a learner-centered classroom were thwarted; after the teacher yielded her power and control to the learners, a group who considered themselves the enlightened dominated the class and effectively silenced other learners.

Because a primary goal of inclusive learning environments is to equalize power between teachers and learners and among learners in the learning setting, issues related to power and control are the most complex. Acknowledging and discussing these issues can be a first step in addressing them.

Creating Inclusive Learning Environments: Some Guidelines

As noted earlier, depending on the instructor, the learners, and the context, each learning environment will differ in terms of inclusiveness (Tisdell 1995). Although these variations make it impossible to be prescriptive about creating inclusive learning environments, the following suggestions can be used to guide their development:

- Acknowledge that all individuals bring multiple perspectives to any learning situation as a result of their gender, ethnicity, class, age, sexuality, and/or physical abilities
- Recognize that since identification with social groups is multiple and complex, [a learner's] claimed identity will be in response to many contextual factors that position the individual politically
- Reflect the experiences of learners, both as individuals and as members of particular social groups, and value these experiences through their use as the basis of learning and assessment (Shore et al. 1993, p. 3)
- Pay attention to the power relations inherent in knowledge production
- Be aware that participants are positioned differently in relationship to each other and to the knowledge being acquired
- Acknowledge the power disparity between the teacher/facilitator and the students (Tisdell 1995, p. 90)

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ERIC CELEBRATING 30 YEARS - 1966-1996
Clearinghouse on Adult, Career, and Vocational Education

1996

by Sandra Kerka

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Journal Writing and Adult Learning

The value of journal writing to a course with adult students cannot be overemphasized. (Sommer 1989, p. 115)

Journals and diaries have a long history as a means of self-expression. Several themes prevalent in adult learning—coming to voice, developing the capacity for critical reflection, and making meaning—are reflected in the way journals can be used in adult education. Journals are useful learning tools in a variety of adult education settings. Dialog journals, for example, have become popular in adult literacy and English as a second language classrooms. This digest focuses on several types of journals, exploring their value in assisting adults through their learning journey and summarizing advice from the literature on effective ways to use journals.

Types of Journals

One type is the *reader response journal* or *literature log*, in which learners record their responses to readings. Used on all levels from adult basic education through graduate study, such logs enable readers to enter the literature in their own voice (Perham 1992), placing themselves in relation to the text and discovering what they think about it. Over time, the log itself becomes another primary text to which they can respond (Perl 1994). Usually, entries are shared with the class, stimulating discussion. In one variation described by Perham, a looseleaf notebook accessible to the whole class becomes a collaborative journal in which learners and teacher make ongoing comments. Both Perham and Perl feel that these response journals have the power to build a community of learners though the process of critical co-reading and co-writing.

The *learning journal* is a systematic way of documenting learning and collecting information for self-analysis and reflection. When used in an adult education class, they can be more or less structured depending on the objectives and degree of self-direction of the learners. Examples from Schatzberg-Smith (1989), Oaks (1995), and Clark (1994) illustrate the wide range of learner levels and applications. Adult students in community colleges who are academically underprepared (Schatzberg-Smith 1989) use them to record their study habits and attitudes; through journal dialog with a more academically skilled adult, they receive support, insight, and feedback; learn to connect the abstract and the concrete; and develop metacognitive strategies they will need for higher education.

Distance learners lack the physical presence of co-learners for dialog and collaboration. At Empire State College (Oaks 1995), a structured learning journal replicates for distance learners many of the functions of a collaborative writing group. The learners are given specific questions that stimulate their journal entries and reinforce their movement through the writing process. In a sense, the journal substitutes self-dialog for communal discourse.

Clark (1994) explains how structured learning journals further the goals of experiential learning for gerontology students preparing to work on interdisciplinary health care teams. The ongoing developmental dialog in their journals is expressed through three types of entries: (1) observational notes, with little interpretation; (2) theoretical notes that attempt to make meaning of the observations and experiences; and (3) methodological notes, a "kind of written bulletin board" (p. 352) on which to post metacognitive reminders about the learning process.

The *reflective journal* is being widely used in the education of health care professionals as an instrument for the development of reflective practitioners. For example, nursing students may read fictional and nonfictional texts and write structured and free responses that facilitate connections between classroom and clinical experience and enable them to examine and clarify their attitudes about caring for patients (Fitzgerald and Weidner 1995). Such journals are "an intentional pause in their often technologically oriented studies" (ibid., pp. 7-8). Paterson (1995) discusses how nursing students' reflective journals are a place in which to practice ways of knowing and envision new ways of thinking and responding. They empower students to challenge the status quo and disagree with teachers, giving them a safe place in which to try out and defend their ideas.

Reflective journals are also used in the preparation of adult educators. Cognitive activities stimulated by this type of journal include observation, speculation, doubt, questioning, self-awareness, problem stating, problem solving, emoting, and ideation (Holt 1994). The reflective dialog journal becomes a professional conversation between the mentoring teacher educator and the preservice teacher trainee (McAlpine 1992).

Electronic journals are being used in distance education and other settings. McIntyre and Tlusty (1995) explain how preservice teachers conducted a reflective dialog on teaching practice using electronic mail. As with many computer-oriented learning situations, the biggest problems were discomfort with the technology or difficulties in access. However, electronic dialog journals increased collegial relationships with teacher education supervisors and provided moral support for isolated student teachers through joint reflection on practice.

Benefits for Adult Learning

Why should adult learners keep journals? According to Schneider (1994), journal writing is closest to natural speech, and writing can flow without self-consciousness or inhibition. It reveals thought processes and mental habits, it aids memory, and it provides a context for healing and growth. Journals are a safe place to practice writing daily without the restrictions of form, audience, and evaluation (Sommer 1989), one reason for their popularity in adult basic education/English as a second language. They are a less formal, less threatening way for older reentry learners to approach writing in a course, to "talk" in a way they might not in class (Grennan 1989).

Journal entries can provide tangible evidence of mental processes. They make thoughts visible and concrete, giving a way to interact with, elaborate on, and expand ideas. Clark (1994) and Grennan (1989) explain how journal entries demonstrate movement through Kolb's modes of experiential learning: recording a concrete experience or feeling, reflecting on and observing the experience, integrating the observation into abstract concepts or theories, and using the theories to make decisions and solve problems.

Journals are tools for growth through critical reflection, for it is not enough to observe and record experiences, but "equally important is the ability to make meaning out of what is expressed" (Clark 1994, p. 355). Writing is a critical ingredient in meaning making, enabling learners to articulate connections between new information and what they already know. The journal becomes another text on which to reflect, but it is a text written in the

learner's authentic voice, and this personal engagement adds a necessary affective element to the learning process.

Using Journals Effectively

Of course, merely writing in a journal does not automatically ensure critical reflection or other learning outcomes, as several studies have shown. Six of the 10 adult educators who kept reflective journals in Holt's (1994) study did not find them helpful; the journals served more as a recordkeeping than a learning tool. Holt concluded that either the guiding questions they were given did not motivate reflection or they did not know how to write reflectively. Three nursing education studies (Fitzgerald and Weidner 1995; Miller et al. 1994; Paterson 1995) found that students wrote more descriptively than reflectively; some resisted journals as "busy work," or their writing slacked off after initial enthusiasm. Journal entries by teacher trainees (Surbeck, Han, and Moyer 1991) were classified in three stages: reaction/response, elaboration, and contemplation; however, few entries reached that third, reflective stage. These examples show that proficiency with reflection is a key to success.

Sommer (1989) identifies another potential difficulty: "as a completely open-ended assignment, journals are doomed to failure" (p. 115). In fact, much of the resistance of Grennan's (1989) students to journal writing was connected to open endedness. Similarly, nursing students (Miller et al. 1994) found it difficult to know what to write about.

A third area of concern is related to privacy and the teacher-learner relationship: "How can you encourage students to write freely and also require them to share what they have written?" (Sommer 1989, p. 116). There is also the danger that learners will write what they think the teacher wants to see (Paterson 1995). An aspect of journal writing that can inhibit its potential to stimulate learning "is the learner's perception of the educator's role and any position power imbalance that implies" (Cranton 1994, p. 180). For example, in dialog journals they might feel overpowered by the instructor's voice if traditional power relations are maintained (Roe and Stallman 1993).

To overcome the terrors of the blank sheet of paper that open-ended journals present, learners should be given some guidelines:

- *What is a journal?*—describe for learners the various types and formats.
- *What do I write?*—give specific exercises or guiding questions. For example, What did you learn today and how will you apply that learning in practice? List 100 people who have touched your life; select one and carry on a journal dialog with him/her (Paterson 1995; Walden 1995).
- *Why keep it?*—explain the variety of purposes, including a memory aid, learning documentation, tool for negotiating the curriculum with teachers (Grennan 1989).
- *How will it be used?*—discuss whether and how it will be shared with the class or with the teacher only; whether it will be for personal use only, or to generate material for other assignments; explain that it will not be "graded" for writing style, grammar, or content, but in some cases a regularly maintained journal may count as part of the overall assessment (Paterson 1995).

Paterson identifies four factors that affect willingness and ability to reflect: (1) individual developmental level; (2) perception of the trustworthiness of the teacher; (3) clarity and nature of the expectations of the journal; and (4) quantity and quality of feedback. Cranton (1994) provides some strategies to encourage reflection:

- Have learners use one side of a page for observations and descriptions and the other for thoughts, feelings, related experiences, and images stimulated by the description.
- Suggest a theme or perspective to be explored, such as "my role as a professional."
- Suggest that learners establish a routine for journal writing.
- Propose experiments with various styles. Schneider's (1994) examples include writing letters to a friend, letters to an authority figure, letters to yourself when older or younger; record dreams, drawings, doodles; write dialogs between yourself and someone no longer in your life or one of your dream images; make lists.

Either through dialog entries or the way journals are presented and used, the teacher should function as a "'metaguide,' helping the learner to focus on the reflective moment" (Paterson 1995, p. 219). In the roles of coach, mentor, and dialog partner, adult educators can serve as the "seasoned traveler" steering adult learners to document their learning journey through journal writing.

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Mexican American Women: Schooling, Work, and Family

by Flora Ida Ortiz

THE BUREAU OF CENSUS (1994) reports there are approximately 13 million U.S. citizens of Mexican descent. Over 30 percent reside in the South and over 45 percent in the West. The lives of Mexican American women, wherever they reside, are affected profoundly by schooling, work, and family. This report shows the interdependence of these factors; changes in one affect the others.

Schooling

To begin our discussion, we examine two aspects of the schooling of Mexican American women: (1) persistent conditions affecting the quality of education they receive, and (2) evidence of improving achievement despite continuing challenges.

Mexican Americans are the least well educated group among Hispanics and the total U.S. population (Bureau of the Census, 1994). Comparisons of Mexican American males and females show slight recent increases in the educational achievement of females and a consistent trend of females doing better than the males. Carter and Wilson (1993) report high school completion rates of 47.8 percent for males and 57 percent for females during the 1990-91 school year, which is a decline for males and a slight increase for females.

However, the quality of education for Mexican American women nationally lags behind other groups. Meier and Stewart (1991) claim that the low quality of education for Mexican Americans is due to second-generation discrimination. They report that in "virtually all cases, Hispanics were overrepresented in situations with negative connotations and underrepresented in situations with positive connotations" (p. 162). These authors examined the relationship of minority representation on school boards to representation on administrative staffs and school faculties. Further, they examined the impact of these relationships on Hispanic student success. They found that Hispanics were more likely to be placed in classes for educable mentally retarded (EMR), limited-English proficient, and bilingual education than in classes for the gifted. The rate of Hispanic students assigned to trainable mentally retarded classes dropped as the enrollment of black students increased in the school. Likewise, rates of suspension and expulsion were related to the proportions of middle class Hispanic, black, and white students. As the proportion of low socioeconomic status (SES) black and/or white students increased and the proportion of middle-class Hispanic students increased, positive placement in classes, lower discipline rates, and greater high school completion rates were recorded for Hispanic students. The relationship between the SES of Hispanic students and representation among school board members, administrators, and teachers was also demonstrated. The higher the Hispanic SES and school board and staff representation rates, the more positive the Hispanic students' school experiences. Thus, because most Mexican American women are located in low-SES communities, their school experiences are likely to be negative.

The inadequate delivery of educational services throughout the K-12 period not only affects the academic preparation of Mexican American women, but, according to Reyes, Gillock and Kabus (1994, pp. 362-363), "by the end of their first year in high school, students' perceptions of caring and emotional support from both their families and schools" and social support from peers deteriorate significantly.

The data reflecting the improvement of Mexican American women's educational achievement are difficult to access because: (1) the data are collapsed under the rubric of Hispanic, and (2) the data are not presented uniformly in any one report. Carter and Wilson (1993) present data that show some improvement in higher education for Mexican American women. In 1991, among high school graduates, 39.1 percent of Hispanic women ages 18 to 24 enrolled in college, up nearly 10 percent from 1990. The rate for associate's and bachelor's degrees conferred improved 5.5 percent and 11.6 percent respectively for Hispanic women and 4.1 percent and 6.6 percent respectively for men. For Hispanics, the number of women earning master's degrees rose by 9.7 percent, compared with 7.2 percent for men. The number of Hispanic women receiving doctorates increased by at least 70 percent between 1978 and 1988 (Nieves-Squires, 1991, p. 5). Since 71 percent of the Mexican American population is under 35, compared to 54 percent of the U.S. population as a whole (del Pinal & DeNavas, 1990), these improved percentages are noteworthy.

In examining how Mexican American women fare in higher education, Nieves-Squires (1991, p. 6) wrote, "The isolation of Hispanic women [in graduate school] is compounded by the relatively small number of Hispanic persons of either sex, students, faculty members or administrators, who can serve as role models, mentors, colleagues and peers." Hispanic men represent 2.3 percent of students and women represent 2.7 percent. Hispanic women hold 1.2 percent of full-time faculty positions and 0.7 percent of administrative positions, while men hold 1.7 and 1.3 percent respectively.

Lango (1995) reports that only 1 percent of Mexican American women enroll in graduate programs, and these women tend to be assimilated into the mainstream dominant society. The factors affecting success appear to be Chicanas' perceptions of racism, sexism, economics, family responsibilities, support networks, role models, and mentors. Flores (1988) reported that single women are more likely to complete graduate programs than married women.

Work

In 1990, Hispanic females were employed in technical, sales, and administrative support positions in a major way (about 39 percent). Service occupations provided employment for about 24 percent of Hispanic females compared to 17 percent of non-Hispanic females (Bureau of the Census, 1993).

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The median family income for Hispanics was $25,064, compared to the median income of $35,225 for all Americans. The Mexican American female's median family income with female householder and no husband present is $12,714 (Bureau of the Census, 1993). In 1993, 51.9 percent of Mexican American females were in the labor force, while 11.4 percent were unemployed (Bureau of the Census, 1994). Tienda, Donato, and Cordero-Guzman (1992) describe how recessions have a greater impact on women of color and how education influences the effects of race and Hispanic origin. Due to lower educational attainment and limited skills, women of color tend to be located in low-level, more vulnerable work positions. Those positions cannot offer protection during a period of layoffs nor do they offer advancement.

Many Mexican American women bring to the work force skills they have gained through their experiences as wives, mothers, and community workers. Their skills include fund-raising, organizing neighborhood groups, and negotiating with authority figures, such as priests and city officials (Prado, 1991). These special skills, because they are unacknowledged and unapplied by employers, cannot improve the inadequate working conditions of Mexican American women: segregation by sex and ethnicity; impediments to the development of a work culture including harsh competition, high turnover rates, unfavorable immigration laws, labor restrictions, and protective legislation; and unions that have not accommodated Mexican American women in leadership positions (Soldatendo, 1991).

A woman's work identity pertains to the importance of paid labor in formulation of her sense of self. Mexican American culture does not place a high premium on using women's success in the labor market as a gauge for determining their worth as individuals. Pesquera (1991, p. 116) concludes that among females of working class origins, "family socialization serves to shape work attitudes and their behavior, whereas professional workers acknowledge the centrality of work identity and ideologically reject, in a somewhat ambivalent fashion, cultural expectations" (p. 116). Why working class individuals face barriers to establishing a work identity and shedding cultural expectations to a greater degree than professionals is an intriguing question.

Family

Many Mexican American wives and mothers work in the paid labor force. In those cases, wives highly valued the roles of wife and mother but leaned toward nontraditional sex-role attitudes, expecting their husbands to be flexible and assume some responsibility for housework and child care (Herrera & Del Campo, 1995).

About 70 percent of Hispanic families are maintained by married couples, about 9 percent by a male with no wife present, and 22 percent by a female with no husband present. It is reported that 23.4 percent of Mexican American families live in poverty.

Chicanas continue to describe high levels of ambivalence concerning the interplay between motherhood and employment (Segura, 1991). This may be because, as Flores-Ortiz (1991) reports, "blue collar workers' marital distress increased as they shifted away from a traditional value orientation with regard to gender roles" (p. 172). That is, these women struggled with the dilemmas that arose from trying to meet expectations of their families and their employers. For many women, there are two primary contributing factors to this tension: the work is similar in both settings (such as housework and other service jobs), and they occupy subordinate positions both at work and at home. Even those women who described "egalitarian relationships in their marriages" did not think their influence was equal to their husband's (p. 173). The gap between financial obligations and inadequate income is a major factor in the stress levels experienced by these women and their families (Romero, Castro, & Cervantes, 1988). Additionally, the cycles of unemployment—common in their types of jobs—sever social networks and decrease psychological well-being.

Conclusions

Mexican American women's schooling, work, and family are so highly interdependent that any changes in one affect the others. The importance of schooling includes providing the skills, knowledge, and attitudes necessary for success in work; providing the social context in which Mexican American women can learn to relate socially and personally to Anglo Americans; and improving the social position of the Mexican American woman.

However, as reported by Meier and Stewart (1991), the socioeconomic status of the Hispanic community has a strong bearing on political action to increase Hispanic representation at all school organization levels, thereby improving conditions for Hispanic students.

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Digest

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The Project for Adult College Education (PACE): Student Characteristics, Perceptions, and Writing Development

by J. Christopher McCarthy

The Project for Adult College Education (PACE) is a general education core curriculum designed for working adults. In PACE, students receive approximately half the classroom hours in each subject area that they would in a traditional class. The balance of time is devoted to viewing instructional television (which is directly related to individual course-work) and to participating in weekend conference lectures or activities. Concerns about the viability of the PACE curriculum led to the research at Los Angeles Harbor College presented in this digest. The digest takes a brief look at the history of PACE, analyzes PACE students' characteristics, examines student perceptions of the program, and compares the writing development of PACE students with the writing development of students in the traditional curriculum.

History

The principal architect of the PACE model, Wayne State University researcher, Otto Feinstein, targeted working adults as a population largely neglected by higher education. His Weekend College was designed to allow working adults greater access to college study. In the mid-1970s, the American Federation of Teachers coined the name Project for Adult College Education (PACE) and, with Ford Foundation support, sponsored the implementation of PACE programs throughout the country, with individual colleges adapting the Wayne State model to suit their needs. The first project west of the Mississippi was initiated by the Los Angeles Community College District (LACCD) in 1981.

The LACCD offered PACE as a complete core curriculum leading to the Associate in Arts (AA) degree in five semesters. The goals of the PACE project as stated by the original advisory committee included:

- Providing a quality, liberal arts-based education to full-time working adults through interdisciplinary and team-taught classes, a curriculum based upon themes oriented to working adults, and a delivery system consisting of television, weekend conferences, and class lectures.
- Making full-time education available to students in a condensed time frame.
- Offering a fully transferable curriculum.
- Qualifying students for the AA degree and transfer.
- Developing students' reading, writing and critical thinking skills.

The Current PACE Program

PACE's current structure is built around a five-semester, humanities-based transfer curriculum, with students enrolled in a block of four courses per semester. Each semester is broken into two nine-week terms, during which students enroll in two paired courses, which are team-taught whenever possible. Students attend classes one evening per week, and watch two hours per week of instructional television at home. In past years, instructional materials were broadcast via cable channels; PACE, which has rights to Annenberg materials, now provides videotapes for student viewing at home. Students attend six Saturday conferences over the semester, each generally lasting from 8:00 a.m. until 6:00 p.m. Two additional half-day Saturday conferences are scheduled for exams. Saturday conferences address course-oriented material and try to create a liberal arts college environment with guest speakers, films, experiential activities, and concerts.

Need for the Program

Recent research has underscored the need for programs that take into account the barriers to higher education facing adult students. Traditional-age students (between 18 and 22) are no longer the norm on college campuses. Data from the National Center for Education Statistics (1994) indicate that 38.4% of all college students in 1991 were 25 years of age or older. At two-year institutions, 31% of fall 1991 enrollments were made up of students who reported their age as 30 or older (Phillippe, 1995). Because of work and family commitments, 70% of adult students attend college part-time (Aslanian, 1993). Consequently, colleges have had to examine whether the curriculum, and the manner in which it is offered, is accessible to adults, many of whom work full-time. The PACE program is a model that responds to adult students.

Need for Research

Some faculty view PACE as an easy way to earn a degree. The time devoted exclusively to a particular subject may be between 18 and 30 hours in comparison to 54 to 60 hours in the traditional curriculum. Critics regard the classroom instructional time as insufficient, especially in English, the sciences, and math. They question whether students are being misled into believing they are ready for transfer after a less-than-adequate foundation of lower division coursework.

PACE advocates point to the benefits of a structured course of study in which:

- Writing Across the Curriculum is implemented;
- students work together over five semesters;
- instructors dovetail courses into a cohesive whole; and
- Saturday conferences allow a range of valuable learning activities that are outside the scope of traditional lecture-oriented classes.

The PACE controversy is taking place at a time when all educational programs, but especially nontraditional programs, are being examined in light of shrinking funding. As

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colleges make choices concerning which programs are central to their mission and futures, efforts made for special populations. such as working adults, are often seen as expendable. Justifying a program such as PACE requires solid evidence of its value and effectiveness.

The Current Study

In spring 1993, a survey was administered to the 291 PACE students at Harbor College. Included were questions about students' characteristics, perceptions of the program, and time spent on study. To measure PACE's effectiveness in teaching writing skills, PACE and traditional students who were enrolled in English 101 during the spring semester were asked to write essays comparable to those they had completed during college orientation.

Study Findings

The results paint a clear picture of the PACE student population. PACE has an older student body than does the traditional program: 81% of PACE students are over 24 years of age, compared with 53% of the regular college population. The PACE program has twice the percentage of African-American students than the regular program, and a much higher percentage of women.

The fact that 94% of PACE students plan to transfer is not surprising, as PACE is designed as a transfer curriculum; more interesting is the finding that 46% of PACE students identify themselves as being unable to attend college outside of the PACE format. Over half (63%) of the students indicated that they had left college at an earlier time and returned through PACE. The fact that 94% of PACE students work more than 30 hours per week indicates that although the program is open to enrollment by any student, it is finding its appeal among those for whom it was primarily designed.

Student Perceptions of PACE

Over 99% of the PACE students gave both the program and quality of instruction passing grades, and 93% felt that classroom time was adequate. The results on out-of-class study time revealed that 61% of students spent less than seven hours per week studying or working on assignments. Only 12.5% of the students studied more than 10 hours per week.

PACE students were also asked to identify the best aspect of PACE and the aspect they would like most to see changed. The following were frequently cited as the best aspects of PACE:

- program design, which provides a condensed curriculum and evening and Saturday schedule, allowing working people to enroll full-time and progress in a timely manner;
- quality of instruction, and greater involvement of faculty;
- students' feeling of identification with the program and sense of shared "belongingness." Many noted that their study groups were particularly beneficial;
- the nature of the interdisciplinary instruction; and
- coursework centered on what the students regarded as "important issues."

When asked about program elements that needed changing, the most common responses concerned the television component. Many students felt the television programs had little to do with the subjects being studied, and criticized the lack of currency and the style of presentation of some programs. This problem is being addressed by providing course-related videotapes from the Annenberg collection for student home use. Other criticisms focused on the unavailability of support facilities on Saturday such as the library and bookstore, and the need for a summer component.

Writing Skills

Student responses to questions about writing in PACE revealed that PACE students apparently have greater communication with teachers about written assignments than do regular community college students. This may be due to the nature of the instructional approach or to the age of the students, who might be less intimidated by instructors than younger students. Also, PACE students are more likely to write papers which draw from different sources and which take extended periods of time than do regular community college students.

Entrance and Exit Writing Scores

As evidenced by comparisons of orientation essays and essays written after completing English 101, PACE students enter and exit with more developed writing skills than traditional students. However, students in regular sections of English 101 show greater writing development while in college.

The argument that PACE students exit with skills that are below the level of traditional English 101 students does not appear to have evidence to support it. Although PACE might not provide the opportunity for writing development that the regular 18 week semester does, the students emerge with at least equal, and apparently slightly better, ability to write college essays. It must be remembered, though, that their entrance skills are also significantly better. PACE may make up for the shortened English 101 course in part by promoting writing across the curriculum.

Conclusions

PACE appears to fulfill its objective of offering an academically viable route to the Associate Degree for working adults. To determine whether PACE students obtain the skills needed for successful transfer to a four-year institution, however, continued study will be necessary. This research can move forward, though, with the confidence that the PACE program, while in need of continued critical self-examination, is a program which is valued by those who participate in it and is often viewed as a "last chance" for adults who have returned to college to reshape their lives. The PACE program appears to be a model that other institutions can use to serve working adults.

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National Clearinghouse for ESL Literacy Education

Selling Workplace ESL Instructional Programs

by Miriam Burt
Center for Applied Linguistics

The late 1980s and early 1990s witnessed a rise in visibility for workplace instructional programs to improve workers' basic skills and English language proficiency. From 1988 through 1994, the U.S. Department of Education's National Workplace Literacy Program (NWLP) funded more than 300 basic skills programs, 49% of which offered some English as a second language (ESL) instruction (Burt & Saccomano, 1995). However, independent of (uncertain) federal and other public funding, few companies actually provide instruction in basic skills and ESL to their workers. In fact, a survey done by the Bureau of Labor Statistics (U.S. Department of Labor, 1994) revealed that of the 12,000 businesses surveyed, only 3% offered training in basic skills or in ESL.

This digest explores the issue of why companies do and do not provide workplace basic skills and ESL instruction. It reports on data from a survey of businesses in Illinois (Illinois Literacy Resource Development Center, 1993) and from interviews with 18 workplace ESL program directors, teacher trainers, curriculum writers, and instructors (Burt, in press); and it offers suggestions to educational providers and independent consultants on how to *sell* or market workplace ESL programs to employers.

Why Some Businesses Provide Instruction

Managers, education providers, employees, and supervisors from twenty-one businesses in Illinois were interviewed in a study of why businesses do or do not provide basic skills and ESL instruction (Illinois Literacy Resource Development Center, 1993). Fourteen businesses provided this instruction, seven did not. The following were the reasons given for initiating workplace programs:

Quality improvement

In manufacturing companies there has been a recent emphasis on quality, which has necessitated a change in the manufacturing process. When companies provided quality improvement trainings, they were not successful. Managers realized that before these could be implemented, basic skills needed to be raised.

Commitment of top management to training and education

In some companies, training and education are part of management philosophy. The classes offered in these companies often cover general knowledge and skills. The goal is not necessarily to prepare workers to succeed in other company training, but rather to allow them to pursue their own goals.

Sales effort of an educational provider

Educational providers who were knowledgeable and willing to prepare and design basic skills programs at a low cost have sold such programs to managers who are aware of basic skills problems within the workplace. If the employers and the educational provider have a "previously established relationship" (Illinois Literacy Resource Development Center, 1993, p.3), there is a greater chance the employers will buy the educator's services.

The businesses' preferred instruction providers were public schools, community colleges, and universities. In fact, these were preferred over in-house providers and commercial job-training providers. Their third, fourth, and final choices were community-based organizations, private consultants, and union consortia.

Why Other Businesses Do Not Provide Instruction

Although some of the Illinois business representatives interviewed indicated that they were aware of employee deficits in basic skills and language proficiency, they had not initiated workplace programs. The reasons given were:

Cost of Instruction

Some companies did not offer training of any kind to any of their employees—whether as perks for executives, technological training for middle management, or basic skills instruction for entry level workers. Training of any kind was seen as too expensive.

Reluctance of upper management

Upper management was at times reluctant to initiate training. This was due, in part, to lack of information about the need for programs, the kinds of programs available, and the cost involved. A 1990 evaluation of state-financed workplace-based retraining programs supports this finding (U.S. Congress, Office of Technology Assessment, 1990). This study attributed managers' failure to provide instruction to a lack of information about the best approach to use, uncertainty about how to fit the training into new technology and work processes, and reluctance to disrupt work schedules for an "elusive future benefit" (p.131).

The not-bad-enough syndrome

Some companies find other ways of dealing with basic skills deficits rather than providing instructional intervention. For example, some businesses screen prospective employees through a basic skills test. In a 1989 survey by the American Management Association, 90% of the responding companies said they would not hire workers who fail such a test (U.S. Congress, Office of Technology Assessment, 1990). Some companies organize the workplace so that the language and literacy deficiencies of already hired workers do not hinder production. These workers may be given the so-called back-of-the-house jobs such as dishwashers or salad preparers, where they have no contact with the public, and minimal, if any, contact with English-speaking coworkers and supervisors. In many companies where most of the workers speak a common native language (often Spanish), frontline managers speak the native language of the workers and the lack of English skills becomes almost irrelevant to the work flow (Burt, in press). However, although the native language may be used almost exclusively in some entry-level positions, in order for workers to be promoted, good English skills are still obligatory (McGroarty, 1990).

How Educational Providers Can Sell their Product

Workplace ESL educators from Alaska, Arizona, California, Colorado, the District of Columbia, Illinois, Maryland, New York, Texas, and Virginia were asked how programs can best sell their services to businesses (Burt, in press). These practitioners were from educational institutions, community-based organizations, volunteer organizations, union consortia, or from within the business itself. Three were independent consultants who had started their own companies to provide workplace ESL instruction.

The following themes surfaced, many of which echo the conclusions drawn from the survey data listed above.

1. Start out with a better chance of success by contacting companies with a history of offering training for employees at all levels, not just as perks for executives.
2. Don't promise what cannot be delivered. It is not likely that a workplace ESL class of 40-60 hours will turn participants with low-level language skills into fluent speakers of English. Educate all the stakeholders—the general managers, the frontline managers, the human resources department, and the prospective learners themselves—about the length of time needed to achieve proficiency in a second language.
3. Offer short courses, or "learning opportunities" (Jurmo, 1995, p. 12) with a few specific, attainable goals. Discrete, highly targeted courses such as accent reduction, teamwork skills, and pre- total quality management (TQM) are saleable and give learners skills to use in any job or workplace.
4. Seek ways to maximize resources and personnel already at the workplace. Programs can schedule a one-hour class/one-hour study time match at work sites where there are learning centers for individual, computer-assisted instruction. Instructors can team with job skills trainers to offer vocational English as a second language (VESL). The program can require home study to match workplace course hours. This is especially important when offering instruction to learners with low-level English skills who may not yet have the language proficiency necessary to access the more specialized courses listed above.
5. In addition to providing instruction on American workplace practices and values to ESL learners, offer cross-cultural courses to both native and nonnative English speakers at the workplace. This may help dissipate feelings that the language minority workers are getting special treatment and can directly address the need for better communication at the workplace.
6. Develop realistic ways of documenting how instruction has improved performance at the workplace. Promotions due to improved skills are very impressive; however, in many companies, downsizing is occurring, and no one, native or nonnative speaker, is being promoted. Instead, educators can cite other indicators of improvement, such as increased number of written and oral suggestions made by learners at meetings or other appropriate times; increased number of learners expressing the desire to be promoted; and increased number of learners asking to be cross-trained. (See Mikulecky & Lloyd, 1994; and Mrowicki & Conrath, 1994, for discussions of measuring and documenting improvements at the workplace.)
7. Make certain that general managers actively support the program. They authorize the classes and their authority is necessary to ensure that their frontline managers (the participants' direct supervisors) strongly support the classes. The supervisors will arrange schedules so that workers can attend classes, provide opportunities on the job for them to use what they are learning, and encourage them to attend classes regularly. (See Kirby, 1989, for a discussion of the role of frontline managers in ESL instructional programs.)
8. Don't insist on teaching language for the workplace only. Although the workplace is the core of and the backdrop for instruction, workplace instruction does not need to be connected exclusively to workplace skills. Educators know that learning means transfer of skills to other life situations and learners have always sought this link. Many educators interviewed said that company management asked them to teach life skills and general communication skills as well as workplace skills, especially to learners with minimal English.

Conclusion

Although basic skills and English language instruction are often viewed as real needs at the workplace, few companies provide this for their workers. With the decrease in federal and state funds available for instruction at the workplace, it is not enough for educational providers to design, implement, and evaluate workplace instructional programs. They must also be able to *sell* their programs to the businesses they are asking to sponsor the instruction.

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National Clearinghouse for ESL Literacy Education

Transitioning Adult ESL Learners to Academic Programs

by Judith Rance-Roney
Lehigh University

Adults study English as a second language (ESL) in a variety of settings (e.g., church basements, workplaces, public schools, community centers) for a variety of purposes (e.g., to improve employability, to survive in society, to help with children's education). However, few of the ESL participants in adult education classes transition, or move on, to academic ESL programs which prepare them for content study in a subject area, or to general education development (GED) study which provides them with a certificate of high school equivalency.

This digest examines the differences between academic and adult ESL programs, and it suggests curricular and programmatic strategies to facilitate transitioning learners from adult ESL to academic English or to GED programs.

The Curricular Mismatch

Between the adult ESL literacy curriculum and the GED and academic ESL curricula, there are differences in *purpose*, *content*, and *contextuality*.

- *Purpose*: The goal of federally-funded adult ESL instruction is to provide learners with the language skills necessary to function in American society, and to attain and retain a job (Young, Fitzgerald, & Morgan, 1994). In contrast, the goal of academic ESL instruction is to prepare adults of limited English proficiency with the grammar, vocabulary, reading, and writing skills necessary to succeed in remedial or developmental courses and mainstream academic coursework (Wrigley, 1994a).
- *Content*: In adult ESL programs, the focus is on oral/aural communication and on reading comprehension and writing. The vocabulary and content center around personal expression and on survival needs in the home, workplace, and community (Crandall & Peyton, 1993). Conversely, in academic programs, the focus is somewhat less personal. Students usually learn language through an examination of grammar, less frequently used vocabulary, and longer readings. The content is frequently a precursor to upcoming subject study (Chamot & O'Malley, 1987).
- *Contextuality*: Much of the content and practice in ESL literacy instruction centers around issues within the context of adult life, such as making a doctor's appointment or looking for a job (Crandall & Peyton, 1993). In academic English classes, language study is either context-reduced (where there are few clues to help derive meaning) or context-embedded (where clues to meaning are available from the surrounding text material) (Snow, Met, & Genesee, 1989).

Transitional Program Outcomes for Learners

Given the chasm in purpose, content, and contextuality between adult ESL and academic ESL instruction, what learner outcomes can adult ESL or transitional programs facilitate to enable learners to bridge the gap to academic or GED programs?

(1) Motivation and belief in self-worth to face the challenges of academic demands and administrative systems

Adult learners moving on to academic ESL might face for the first time in their language study certain inflexible standards—such as passing GED exams or course tests—that must be met to achieve success. Learners may also experience an absence of the consistent positive feedback they have probably found in the adult ESL classroom. For learners to be successful in continuing education, they need to believe that advancement is possible through their *own* efforts (Rance-Roney, 1994).

To promote this necessary self-confidence in learners, programs need to challenge them with difficult but attainable tasks. For example, learners who want information about academic classes must do all the necessary research themselves to get this information (e.g., call the college dean, find how to get to the campus by car or by public transportation, practice the interview, do the interview).

(2) Knowledge of how to transition to the norms of the academic community

Formal collaborations among adult ESL service providers and institutions of higher learning are key to addressing this outcome. Collaborations can assure linking of curricula among the programs, orientation for transitioning learners, and transitional classes to bridge the gap between the programs (Wrigley, 1994a). Programs can create mentor partnerships in which ESL learners shadow learners who are already in GED or college classes. Other activities to familiarize learners with their future academic environment include interviewing academic staff and native English-speaking college students, reading college orientation guides, and taking notes from videotaped class lectures.

(3) Conceptual development/critical thinking skills such as synthesis, analysis, and evaluation

Wrigley (1994b) found little evidence of a metacognitive or learning-how-to-learn focus in the exemplary programs surveyed in a federally-funded study known as the Aguirre study. Yet, conceptual development exercises need to be part of the curriculum at every level, and some academic skills can be part of all adult language learning. For example, with a short reading selection, even low-level learners can *classify* vocabulary words (e.g., list all descriptive words or all action words) and can *analyze* actions of the main characters.

(4) A greater focus on language accuracy or careful language

Adult learners recognize that the language of the mainstream culture is rule-based and that knowledge of these rules is necessary for success in the academic world. While many adult learners acquire much English through immersion in the English-speaking culture surrounding them and through classroom opportunities for

discussion, many educators now agree that immersion alone is not sufficient to perfect language and that appropriate correction and feedback have a legitimate role in the ESL classroom (Hadley, 1993).

(5) Extensiveness in reading and writing, and multiple skill integration thematically organized for in-depth study

Adult learners may begin ESL literacy study with grammar or phonics instruction, but it is recommended that this isolated skill approach be integrated with instruction organized around themes of personal interest such as childcare, transportation, and immigration (Auerbach, 1992). These themes give meaning to language being learned and lead to richer and more extensive language use. Later, when academic goals become evident, content needs to be less relevant to learners' personal interests and more tied to community, national, and international themes (Chamot & O'Malley, 1987). This broader scope is necessary for the comprehension of academic content material in the sciences and humanities.

Reading is arguably the most important skill for second language learners in academic contexts. While pre-academic classes may require 5 or 6 pages of reading, academic courses frequently require 30 to 50 pages of reading per night. In transitional programs, learners need to read whole text material (novels, textbook chapters, autobiographies, etc.) and make extensive written responses to the material.

Writing instruction in the ESL adult classroom and in the academic classroom differ not only in the expectation of correct grammar, but also in the knowledge writers must possess of American English rhetorical organization, written sentence structure, punctuation, and cohesion words. Learners, even in adult ESL programs, need to learn a style of writing that may differ markedly from that of their first language. Furthermore, in adult ESL classes, writing is often based on personal experience, but academic writing tasks are more often based on articles, books, or topics unrelated to the learners' lives. All of these elements must be addressed in the transitional classes.

6) Development of a larger vocabulary corpus centered on less-frequently used academic terminology

While fluent native readers possess a written English vocabulary of 10,000-100,000 words, second language learners generally have only 2,000-7,000 English words when they begin their academic studies (Hadley, 1993). This gap can impede success in listening to lectures, reading academic material, or writing essays.

Many educators and researchers believe that extensive reading is the best way to build one's vocabulary. When learners are exposed to words in meaningful contexts, they are more likely to learn the words than if they are exposed to them in isolation; therefore, learners should be urged to read news magazines, newspapers, and whole text material to foster this vocabulary development. Krashen (1986) advocates narrow reading—the reading of several articles on the *same* topic—so that learners receive multiple exposure to new vocabulary in slightly differing contexts. In providing multiple texts to use in analyzing, evaluating, and comparing and contrasting authors' points of view, narrow reading also serves to build learners' critical thinking skills.

7) Integration/transference of first language skills and use of L1 in learning strategies

The acquisition of literacy skills in a second language (L2) by adults already literate in their first language (L1) is a complex phenomenon. However, there is evidence of transfer of reading and writing skills from L1 to L2 (Carson, Carrell, Silberstein, Kroll, & Kuehn, 1990; Osburne & Harss-Covaleski, 1992). More research is needed on this, however, and on the value of using L1 to help complete difficult tasks in the academic environment (Osburne & Harss-Covaleski, 1992).

Some educators advocate allowing learners to judge for themselves which tasks are better performed in L1 and which ones can only be completed in L2. For example, learners might choose to use L1 when generating ideas for a writing assignment. When listening to lectures where the speed, density, and familiarity of the material exceeds the skill of English language note-taking, learners might find it useful to take notes in L1 or to code switch, writing key words in English and explanatory information in L1. When reading, translation of terms or L1 reflective margin notes may promote learning of concepts and new vocabulary.

Conclusion

Transitioning learners from adult ESL to academic and GED programs requires a broad range of approaches and skills. Administrators, teachers, and learners need to work together to create programs that prepare learners to achieve all they can academically. Research is needed on how content learned in L1 can transfer to L2, and on the value of using L1 to help complete academic work in L2.

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ERIC Clearinghouse on Adult, Career, and Vocational Education

Workplace Literacy: Its Role in High Performance Organizations

by Susan Imel

1995

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During the past decade a number of issues have been raised about the goals and purposes of workplace literacy; chief among these has been the debate surrounding the conceptualization of workplace literacy as a functional context program with its focus on analyzing the gaps between a workplace's literacy requirements and the abilities of its work force. Critics have felt that, too often, the job context approach was interpreted too narrowly and failed to involve workers. Frequently, the result was a curriculum designed to "fill in the gaps," usually through a top-down process with decisions made primarily by company management, human resources development specialists, and higher-level educational experts (Pritz and Imel 1993). At the same time, workplace educators were discussing how workplace literacy programs should be created, the concept of high performance organizations was emerging. Conversations began about how workplace literacy could be conceived of as a means of changing not just "the behavior of individual employees but of the larger work organization as well" (Imel and Kerka 1992, p. 4) by reinforcing critical thinking and teamwork required to transform workplaces into high performance, continuous improvement organizations. Sometimes referred to as the "collaborative" approach, the perspective that links workplace literacy to collaborative ways of organizing work—and that broadens the functional context approach—is gaining support (Jurmo 1994b). This *ERIC Digest* describes the relationship between collaborative approaches to workplace literacy and high performance work organizations, reviews some principles underlying the collaborative approach, and presents results of research on literacy development in high performance work organizations.

High Performance Work Organizations and the Collaborative Approach

In a high performance work organization (HPWO), employee basic skills are just one of many components (Jurmo et al. 1994). HPWOs feature flatter organizational structures, work done by teams of highly skilled workers, and a focus on quality, customer service, and continuous improvement (Kerka 1995). In addition to producing high-quality products and services, an HPWO also "provides a high quality of work life for all employees" (Jurmo et al. 1994, p. 4).

HPWOs need workers who can take initiative, identify and solve problems, make decisions, and engage in a wide range of tasks. Traditional basic skills such as reading, writing, math, and communication are important primarily within the context of these higher-level skills (ibid.). Although many organizations have not achieved high performance status, they are moving in that direction and are seeking to develop a work force with a broader range of skills (Kerka 1995).

In HPWOs, education and training are part of a strategic plan for continuous improvement, and goals for education are both long and short term. Also, "workplace education is more than remedial; [it] focuses on building skills for continuous improvement and flexibility (cross-training) as well as job specific skills (education model)" (Stein and Sperazi 1991, p. 7).

The collaborative approach to workplace literacy is one that involves a variety of stakeholders in planning and carrying out the program. Sometimes called an organizational approach, it recognizes that "workplace literacy and basic skills upgrading programs, alone, will not ensure that both worker and organizational goals around basic skills and communication are met" (Waugh 1992, p. 2). This approach supports the goals of HPWOs in which workers are expected to be involved in decision making related to their jobs. Part of this decision making involves management, workers, the union (if appropriate), and educators in a participatory process for planning, implementing, and evaluating workplace literacy programs (Jurmo 1994b; Stein and Sperazi 1991; Waugh 1992).

Using a Collaborative Approach

The collaborative approach to workplace literacy that supports a high performance learning model is based on the following principles of good practice (adapted from Waugh 1992, pp. 6-7):

- **There is no "quick fix."** Basic skills are addressed as a part of the organization's overall training and education strategy.
- **All stakeholders are involved.** A collaborative partnership with all workplace players is the key to establishing a successful workplace basic skills initiative.
- **Process and practice are based on an empowerment model of literacy.** Programs build on the experience, knowledge, and skills that workers and organizations already possess.
- **Workplace literacy initiatives accommodate and respect cultural, linguistic, and racial diversity.** The needs of the work force may need to be met in different ways to achieve the same outcome.
- **Literacy is analyzed within the context of other workplace issues.** Basic skills are examined in a way that shows their relationship to other factors such as communication channels, work processes, equipment, existing training strategies, and management style. Such an approach avoids "blaming the worker" by addressing other factors that may detract from worker performance.
- **Upgrading programs are only one component of managing change.** Because basic skills programs alone will not meet all the needs of a particular workplace, other activities are undertaken as well.
- **Workplace basic skills programs are tailored to each workplace and its workers.** The scope and variety of skills needed by workers varies from organization to organization and no one strategy or curriculum will fit all workplaces.
- **Clear language is essential.** All key workplace documents should be written clearly so that they can be understood by everyone.
- **Workplace upgrading programs should be voluntary.** Learning can take place only in a context where participants feel comfortable and have the motivation to learn.

An organization that is not moving in the direction of high performance may not be ready to support a collaborative approach to workplace literacy. A program developer could conduct a workplace needs assessment to determine the company's present stage of development and discuss these findings with stakeholders as a means of clarifying their goals and values in relationship to the program. If the company is unable or unwilling to begin the collaborative process of moving toward a high performance approach, perhaps another type of workplace education program can be implemented (Jurmo 1994a).

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Literacy Development in HPWOs: What Do We Know?

Although a number of resources (e.g., Waugh 1992, Young 1994) are available that can be used to guide the development of the collaborative approach, little research exists on how literacy skills are actually developed in HPWOs. Young's (1994) study of workplace skill development among New York State's civil service employees supported the assumption that the move toward participatory management required more sophisticated literacy and interpersonal skills. According to Young, if the focus was only "on the specific skills embedded in these jobs we would be focusing on peripheral job requirements: filling out burdensome reports, studying cleaning directions, or time cards" (p. 41). However, the changes toward more participatory management "created some interesting new needs" (ibid.), including more sophisticated reading and writing skills, and skills to resolve conflicts resulting from participatory, team activities.

Another study (Hart-Landsberg and Reder 1993) examined the roles of literacy and teamwork in an automotive parts manufacturing company that was restructuring to implement a high performance model of team organization, worker responsibility for quality control, and a pay-for-knowledge compensation system. The study examined the formal and informal educational practices from which 480 workers, organized into 19 production teams (ranging in size from 3-88 members), learned and taught literacy skills. Its focus was on the literacy learning environment of workers with lower literacy levels or fewer educational credentials than most of the plant's employees.

Termed "skills-poor" workers by the company, these employees had distinctive sets of needs and motivations and "the workplace presented them with limits and opportunities that were different, often in subtle and unplanned ways, from those available to workers with more skills or schooling" (p. v). In the company studied, the skills-poor workers were at a disadvantage because (1) they faced two sets of educational goals—literacy and upgrading applied skills, (2) they were not apt to be selected for work in settings that structured practice in literacy and other skills, and (3) although sometimes promising, the teaching and learning strategies they experienced were not tailored for their educational needs. The researchers determined that "the skills-poor may have *constructed* literacy lessons in settings they encountered, but these settings were not *designed for* optimal skills development. Instead, they were tied to the needs of production, the exigencies of the moment, and the ingenuity and good will of coworkers for whom the teacher role was not always a priority" (p. 30).

Conclusions from the study include the following (ibid., pp. 31-32):

- Teamwork substantially increases the demand for literacy skills.
- Workers appear to develop diverse literacy skills in response to the demands for new proficiencies affiliated with teamwork.
- Team organization in the workplace opens rich possibilities for literacy education.
- The educational opportunities in a team environment can be both a benefit and a burden to skills-poor workers.
- The company that enhances its workforce capability by restructuring work and incentives for learning takes on many functions of an educational institution.

Conclusion

The limited research on literacy development and HPWOs supports the use of a collaborative approach to workplace literacy in a work environment that is moving toward a high performance model. However, a collaborative approach is not a sufficient condition for a company to be a HPWO, and neither must a company be a HPWO to use the collaborative approach. Rather, they are seen as mutually supportive. Also, as revealed by Hart-Landsberg and Reder (1993), a HPWO environment can still put "skills-poor" workers at a disadvantage. To understand the nuances and subtleties of how literacy development occurs, program developers must have a thorough knowledge of any workplace context in which they are working.

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CENTER ON EDUCATION AND TRAINING FOR EMPLOYMENT
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Goal 7: Safe, Disciplined, and Alcohol- and Drug-Free Schools

By the year 2000, every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning.

Objectives:

- Every school will implement a firm and fair policy on use, possession, and distribution of drugs and alcohol;
- Parents, businesses, governmental and community organizations will work together to ensure the rights of students to study in a safe and secure environment that is free of drugs and crime, and that schools provide a healthy environment and are a safe haven for all children;
- Every local educational agency will develop and implement a policy to ensure that all schools are free of violence and the unauthorized presence of weapons;
- Every local educational agency will develop a sequential, comprehensive kindergarten through twelfth grade drug and alcohol prevention education program;
- Drug and alcohol curriculum should be taught as an integral part of sequential, comprehensive health education;
- Community-based teams should be organized to provide students and teachers with needed support; and
- Every school should work to eliminate sexual harassment.

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Enhancing Students' Socialization: Key Elements

Jere Brophy

Coping with students who display problems in personal and social adjustment can be frustrating. Success in teaching problem students often requires extra time, energy, and patience. Recent research reviewed by Jones (1996) indicates that teachers rank individual students who have serious or persistent behavior problems as their chief cause of stress. However, teachers can take direct actions toward minimizing classroom conflicts by socializing students into a classroom environment conducive to learning.

Key elements of successful student socialization include modeling and instruction of prosocial behavior; communicating positive expectations, attributes, and social labels; and reinforcing desired behavior (Dix, 1993; Good & Brophy, 1994, 1995). Successful socialization further depends on a teacher's ability to adopt an authoritative teaching style for classroom management, and to employ effective counseling skills when seeking to develop positive relationships with individual students.

Modeling

Modeling prosocial behavior is the most basic element for enhancing student socialization, because teachers are unlikely to be successful socializers unless they practice what they preach. Modeling, accompanied by verbalization of the self-talk that guides prosocial behavior, can become a very influential method of student socialization because it conveys the thinking and decision making involved in acting for the common good. In situations in which prosocial behavior is difficult for students to learn, modeling may have to be supplemented with instruction (including practice exercises) in desirable social skills and coping strategies. Such instruction should convey not only *propositional knowledge* (description of the skill and an explanation of why it is desirable), but also *procedural knowledge* (how to implement the skill) and *conditional knowledge* (when and why to implement it).

Projecting Positive Expectations

Consistent projection of positive expectations, attributes, and social labels to students may have a significant impact on fostering self-esteem and increasing motivation toward exhibiting prosocial behaviors. Students who are consistently treated as if they are well-intentioned individuals who respect themselves and others and who desire to act responsibly, morally, and prosocially are more likely to develop these qualities than students who are treated as if they had the opposite inclinations—especially if their positive qualities and behaviors are reinforced through expressions of appreciation. When delivered effectively, such reinforcement is likely to increase students' tendencies to attribute their desirable behavior to their own personal traits and to reinforce themselves for possessing and acting on the basis of those traits.

Authoritative Teaching

Teachers, as the authority figure in the classroom, need to be authoritative rather than either authoritarian or laissez-faire. Teachers have the right and the responsibility to exert leadership and to exercise control, but they increase their chances of success if they are understanding and supportive of students and if they make sure that students understand the reasons behind their demands. Focusing on desired behavior (stressing what to do rather than what not to do) and following up with cues and reminders is also effective. Teachers should be prepared to supply objectively good reasons for their behavior demands.

When situations calling for disciplinary interventions arise, it is important for teachers to handle them effectively. General principles for doing so can be identified: minimize power struggles and face-saving gestures by discussing the incident with the student in private rather than in front of the class; question the student to determine his or her awareness of the behavior and explanation for it; make sure that the student understands why the behavior is inappropriate and cannot be tolerated; seek to get the student to accept responsibility for the behavior and to make a commitment to change; provide any needed modeling or instruction in better ways of coping; work with the student to develop a mutually agreeable plan for solving the problem; concentrate on developing self-regulation capacities through positive socialization and instruction rather than on controlling behavior through the assertion of power. Teachers who employ effective student socialization strategies can develop genuine solutions to students' chronic personal and behavioral problems rather than merely inhibiting the frequency of misconduct by applying sanctions.

Counseling Skills

Basic socialization and counseling skills may be needed for working with individual students, especially those who display chronic problems in personal development or adjustment. These basic skills include developing personal relationships with problem students and reassuring them of

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your continued concern about their welfare despite their provocative behavior; monitoring them closely and, if necessary, intervening frequently but briefly and nondisruptively to keep them engaged in academic activities during class; dealing with their problems in more sustained ways outside of class time; handling conflicts calmly without becoming engaged in power struggles; questioning them in ways that are likely to motivate them to talk freely and supply the needed information; using active listening, reflection, interpretation, and related techniques for drawing them out and helping them to develop better insights into themselves and their behavior; insisting that the students accept responsibility for controlling their own behavior while at the same time supportively helping them to do so; and developing productive relationships with their parents.

Attributes of Successful Teachers

Good and Brophy (1995) have identified some general attributes of teachers that contribute to their success in socializing students. These attributes include:

- *social attractiveness*, based on a cheerful disposition, friendliness, emotional maturity, sincerity, and other qualities that indicate good mental health and personal adjustment;
- *ego strength*, exhibited in self-confidence that allows teachers to be calm in a crisis, listen actively without being defensive, avoid win-lose conflicts, and maintain a problem-solving orientation;
- *realistic perceptions of self and students*, without letting perceptions become clouded by romanticism, guilt, hostility, or anxiety;
- *enjoyment of students*, while maintaining their identity as an adult, a teacher, and an authority figure; being friendly but not overly familiar; and being comfortable with the group without becoming a group member;
- *clarity about teacher roles* and comfort in playing them, which enables teachers to explain coherently to students what they expect;
- *patience and determination* in working with students who persist in testing limits;
- *acceptance of the individual*, though not necessarily of all of his or her behavior, and making this attitude clear to students; and
- *the ability to state and act on firm but flexible limits* based on clear expectations, keeping rules to a minimum and liberalizing them as students become more independent and responsible over time.

Developing these personal qualities and using research-based principles for managing the classroom will set the stage for student socialization and will go a long way toward minimizing the need for disciplinary interventions.

Conclusion

Teachers are asked to take responsibility for an increasingly diverse population of students in situations where individual differences are to be expected and accepted. An attitude of caring and an orientation to students is crucial to success in socializing students into a classroom culture that fosters learning. Interacting with students for several hours each day in various situations puts teachers in a position to take direct action in helping students cope with their problems.

Research shows that teachers' feelings of self-efficacy or confidence are correlated with their effectiveness ratings. Developing the skills for enhancing student socialization represents an expansion of the teacher's role beyond that of instructor or classroom manager. Teachers who believe that they possess, or at least are developing, good management and student socialization skills will be able to remain patient and focused on seeking solutions when confronted with difficult problems. In contrast, teachers who view management and socialization skills as talents in which they are lacking may tend to become frustrated and give up easily. Through developing their role as facilitators of students' socialization into the learning environment, teachers can create the potential for having a significant impact on the lives of problem students.

This digest was adapted from: Brophy, Jere. (1996). *Teaching Problem Students*. New York: Guilford. Adapted with permission of the author.
See also: Brophy, Jere. (1995). *Elementary Teachers' Perceptions of and Reported Strategies for Coping with Twelve Types of Problem Students*. ED 389 390.

For More Information

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DIGEST

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Gaining Control of Violence in the Schools: A View from the Field

Too often in urban schools across the country, both students and teachers feel unsafe. Many have been threatened physically or verbally, or have directly experienced violence. Beyond generating fears for everyone's safety, violence in schools is diverting energy and resources from instruction. Thus, it is not surprising that one of the National Education Goals for the year 2000 is "Safe, disciplined, and drug-free schools" that offer an "environment conducive to learning."[1]

Most analyses of educational problems and prospects are drawn from university-based research. By contrast, this digest presents the up-to-date wisdom of public school educators whose objectivity is enriched by having to solve the problems that arise daily in today's city schools. The digest summarizes a rich day of discussion among urban educators about the causes of school violence and their possible alleviation. Held on May 19, 1994 at the National Education Association (NEA) in Washington, DC, the discussion was sponsored by its Center for the Revitalization of Urban Education, with participants that included NEA representatives from 20 major American cities.

A Violent, Divided Society

The celebration of violence in movies, on television, and in popular songs has turned into an epidemic of personal tragedies for people living in our Nation's cities. Exacerbated by the ready availability of drugs and weapons, violence has become a public health issue of immediate concern. Yet the sources of violence are deep and long-standing, for ours is a country sharply divided between haves and have-nots; and areas of high poverty concentration have long been susceptible to all forms of violence, from vandalism, robbery, and rape, to suicide—the ultimate violence of despair.

People who grow up in poor urban neighborhoods tend to be surrounded by unemployed adults, rundown housing, a physically deteriorated environment, and the constant fear of crime. Too often their own parents are ill-prepared, neglectful, or even abusive—children, like them. And the paucity of good role models in the community and at school contributes to young people's belief that the deck is stacked against them. Not surprisingly, these youth experience a free-floating anger, accompanied by feelings of frustration and helplessness, making them tinder boxes, ready to ignite at any provocation.

Large, Overburdened Schools

Surrounded by violence in their homes and neighborhoods, as well as in the society at large, youth often look to the school as a haven. Indeed, the most resilient are students who can use their teachers and other staff as mentors and role models, and their time at school as a profitable refuge. Unfortunately, large urban schools are themselves often anonymous, alienating, and fraught with danger. Insofar as the schools mirror the society, they can exacerbate the problem of violence in several key ways:

Impoverished Neighborhoods, Impoverished Schools

Because schools are largely funded by property taxes, the school districts that face the toughest challenges from the students they serve are also those with the fewest funds to meet their children's needs. Schools in poor, deteriorated, crime-ridden neighborhoods tend to be physically dilapidated, overcrowded, and lacking the resources necessary for effective teaching. Not only are classes much larger than in affluent neighborhoods, but students sit at broken desks, and teachers (who are often less well paid than their suburban colleagues) must do without laboratory equipment, computers, and even the most elementary supplies like chalk and books.

Urban students are aware that their schools are rundown and poorly equipped in comparison with suburban schools, that the technology isn't up-to-date enough to prepare them for jobs or college, and that they are often distrusted and feared by the adults who work with them. When these same students are able to go to school in well-equipped, modern buildings, they score higher academically than their peers in the old rundown schools. In fact, in several cities, when old schools were renovated or new schools built, students' test scores showed marked academic improvement.

Large Schools and Classes

The inability of teachers and other school staff to make meaningful connections with students in large schools and increasingly large classes has become a key safety issue.

Adolescence is universally a precarious developmental stage, and many teenagers have limited reserves of self-esteem. Given the enormous problems urban students face, they see little hope for their future. Although urban adolescents want contact with adults, too often they are deprived of sustained relationships with caring adults in their homes and neighborhoods. Unfortunately, even elementary school teachers must struggle against large classes to pay adequate attention to their students, and

[1] Executive Office of the President. (1990). *National goals for education*. Washington, DC: Author. (ED 319 143)

teachers in junior highs and secondary schools often see 150-200 students a day. Thus teachers inadvertently become yet another lost opportunity for connection. Without sustained contact, they cannot give their students a vision of what education can offer, or save them from self-destructive behavior. Indeed, many educators are convinced that, without reducing class size, all other attempts to ensure school safety can at best offer marginal improvement.

Teacher Isolation, Uncertainty, and Cynicism

It was once thought to be a benefit of the profession that teachers work alone in their classrooms, behind closed doors. However, teacher isolation from each other and from administrators and other school staff, as well as from parents and the surrounding community, has become an increasing liability.

The recent threats of privatization, as well as salary cuts in several cities, are only the latest signs that teachers are isolated from their communities, without necessary public support. Unfortunately, the apparent loss of support for public schools comes at a time when new tasks—from "wanding" students with metal detectors, to talking to social workers and teaching socialization skills—are being added to teachers' already stretched roster of daily responsibilities. At the same time, a national uncertainty about how to handle potential conflicts between discipline, safety, and students' rights has made teachers unsure about what parents and the larger society want them to do. Can lockers be searched for weapons without giving students sufficient warning? Is it fair to wand only "suspicious-looking" students and not others? Do students have a right, as some claim, to carry weapons for their own defense?

All these pressures have made many urban teachers feel overworked, stressed, and burned out. A cynicism mirroring that of their students is prevalent among those who can see no way out. As a teacher commented, "You have people who have been in these dilapidated buildings for years, asking for help and getting empty promises. They just give up—throw up their hands and say, 'All I can do is deal with what I've got in front of me. Don't ask me to do anything more.'"

Schools as Fortresses

Despite their acute concerns for safety, few teachers feel at ease in the increasingly garrison atmosphere of inner-city public schools. Rather than offering reassurance, metal detectors and other mechanical devices, as well as security forces, are seen as providing a false sense of safety, if not a harsh symbol of the failure to create safe schools. In the words of one teacher, "The medium is the message. And the message that this gives out is that we are afraid of our students."

In fact, finding weapons on students is relatively rare. In one typical case, a search of over 3,000 students yielded two weapons. This low rate of interception is partly because even the most sophisticated devices cannot catch all weapons entering a school. Unlike an airport, it is nearly impossible to secure every entrance to a school; those few students intent on bringing in weapons are inevitably a step ahead of the security devices, which means that enforcement activities alone cannot create a safe school.

Finally, metal detectors, wands, and security forces with guns, handcuffs, and other equipment, are taking large chunks out of already stretched urban education budgets, even as they increase, rather than alleviate, tension in schools. The garrison atmosphere is exacerbating tensions between students and school staff, who are forced to serve in policing roles. Conflicts are also emerging between teachers, who want to build trust for learning, and the security staff, whose orientation is toward control and arrests. Similarly, friction is surfacing between administrators, whose role is to promote the school and its students, and security forces, who often have no allegiance to the school but are anxious to increase their counts of weapons, violent incidents, and arrests.

Narrow, Top-Down Interventions

While security forces and mechanical devices are the most obvious and controversial responses to school violence, many schools have also taken advantage of special Federal, state, and local money aimed at anti-violence programming. Unfortunately, there have been several serious problems with these funds.

First, whether directed to preventing dropouts, drugs, or violence, the money has tended to be restricted to extremely narrow and fragmented programming. Despite growing evidence, for example, that new or well-kept school buildings increase student performance and morale, anti-drug or violence money can never be used for building repairs. Similarly, the high unemployment rates in inner-cities has been repeatedly linked to crime and violence, yet job programs are rarely part of anti-violence measures. Even extra-curricular activities, after-school centers or sports programming, which are such a direct means of keeping students out of harm's way, rarely meet the tight programming restrictions of these funds. This missed opportunity is particularly sad, since student participation in sports and extra-curricular activities has decreased in the past decade.

Second, anti-violence and other youth assistance programs in schools have tended to be isolated from, and to duplicate, programming in other public agencies. In fact, competition for money in the context of overlapping services has created a territoriality and fear of sharing knowledge and resources among educators, and social service and other professionals. In this environment of competition and suspicion, teachers are rarely an active part of either program planning, or decisions about the needs of an individual student. Instead, they tend to be left out of the loop entirely, or to be given only limited and pre-designed tasks.

Strategies for Creating Safer Schools

The web of educational and societal problems described above are deep and difficult to solve. Certainly, money is needed to repair schools and neighborhoods and to create jobs for youth. It has also become obvious, however, that the ways in which schools and other public agencies approach social problems must change. Educators and other professionals must make wider connections, both in human and conceptual terms.

Although few believe that educational efforts, isolated from the surrounding society, can solve the problem of violence inside schools, there is widespread faith that

some changes can make a difference. Moreover, a number of strategies being tried in schools around the country have improved safety and harmony.

Professional Recruitment and Training

School violence has given new urgency to improving the recruitment and training of teachers, particularly those entering urban schools. It is not enough for recruitment to focus only on finding role models—that is, teachers of the same race/ethnicity as their students. To heal the alienation and hopelessness of urban students, teachers must be found who will live in the communities where they work, so they can help reweave the torn fabric of community between teachers, students and their parents.

At the same time, the complex nature of today's schools necessitates a wider vision of which school staff need job preparation. Training must go beyond teachers, administrators, counselors, and other professionals. It must extend to all employees, including paraprofessionals, cafeteria staff, secretaries, custodians, and bus drivers.

Finally, the content of training must be reshaped. Both immediate, in-service and long-term, pre-professional training are necessary:

In-Service Training. All school staff need to know how to address the immediate problem of violence in classrooms, the cafeteria, the halls, and other school areas, including on school buses. How should an adult behave when a student has a gun? What are the most effective methods of diffusing potential conflict among students, or breaking up fights?

Pre-Professional Training. The pre-professional training of teachers, counselors, and administrators has to be expanded to include more social analyses, so that prospective educators develop a deeper understanding of the issues that impinge on violence: poverty, the media, gun control, the changing economy and joblessness, and parenting. In addition, school staff needs to be better prepared to teach socialization skills and nonviolent conflict mediation. Finally, because the traditional isolation of professionals from one another is no longer tenable, school staff must be trained to work cooperatively with each other, as well as with professionals outside the school.

Programs to Increase Mutual Respect among Students and School Staff

Although coercive methods may stop violence in the short run, too often they create negative emotions that start their own cycle of undesirable behaviors. An alternate approach, which develops self-respect and self-discipline in students and positive working relationships, is obviously better for both students and adults, and for the climate of the school.

Although small, unrelated programs rarely make much of a difference, school-wide interventions that have general support can be helpful. For example, a number of schools have begun to focus specifically on increasing students' self-esteem, as well as on building the socialization skills that many middle-class students learn at home. In some schools, teachers and students are asked to get to know each other, including their strengths, likes, dislikes, humor, and triggers. The object is to come to a consensus about goals, and to create an ownership of, and engagement in, the daily activities of both teachers and students. Several elementary schools are teaching students simple skills, such as how to greet each other and interact with each other in respectful ways. Finding alternatives to cross-sex and same-sex teasing is key, for teasing starts early and leads to goading, heckling, and other forms of aggression, which can be quite dangerous by secondary school. Finally, both elementary and secondary schools across the country are teaching students, parents, and school staff the many benefits and methods of resolving conflict nonviolently, including peer mediation and de-escalation skills.

Expanding the Role of the Guidance Counselor

Although the best way to prevent school violence is to change how everyone relates to each other, a number of schools are achieving good results by adding guidance counselors and giving counselors new roles. At least as important as intervening in crises and talking to students in the aftermath of violence is classroom teaching by counselors. There, counselors generate group work and developmentally oriented activities to improve the way students feel about themselves and interact with each other, particularly during stress or conflict.

Some counselors are also working with cafeteria staff, bus drivers, and other support staff, as well as with parents. The goal is to give everyone involved in the school the same skills, language, and terminology for handling stress and conflict—to create an environment that is consistently nonviolent and nurturing.

Reaching out to Parents

Head Start, special education, and other compensatory education programs have long involved parents in their children's schooling. However, the growing number of "children with children" and other unprepared or overburdened parents puts new pressure on urban schools to support families, as well as teach parenting skills. Activities range from grandparent hotlines to programs that bring parents and junior high students together to learn parenting skills. In all, the point is to help parents and guardians become aware of the parenting skills they possess; enhance their skills; and expand parents' choices in their guiding, teaching, and disciplinary roles.

A number of schools are also working directly to bring parents into the school. In some, community facilitators work with parents to make them more comfortable with schools. In others, classes are held on a four-day schedule; on the fifth day, the parents and the students come to school together to participate in activities. A special literacy programs allows parents and students to learn together. And some schools are creating "half-way houses" just outside the school, where school employees, community volunteers, parent facilitators, and others all can come. There, without the fear of authority, parents can talk more freely about the needs of their children and obtain appropriate services.

Treating the Aftermath of Violence

Students who have witnessed or been involved in violence suffer from post traumatic stress, which can include anxiety, fear, emotional constriction, attention difficulties, and sleeplessness. Thus, just as victims need counseling

when they leave the emergency room, students who were bystanders to the violence need carefully led discussions to help them with their confusion, grief, and anger.

Some schools have instituted first offender programs, which usually involve four- or five-day training sessions for one parent as well as the student. Unfortunately, these programs have limited benefits, since many students involved in offenses have deeper problems, and need more serious help. However, schools are creating quite useful programs for students who have been suspended for violence. For example, the student and parent or guardian may be asked to sign a contract agreeing to joint counseling, as well as to tutoring for the youth. Then once the student returns to school, the student and parent make a one-year commitment to continue the counseling and the tutoring, and to train in mediation and conflict resolution skills.

"Safe School" Plans

Simply stated, a safe school is a place where students can receive a high quality education without the threat of violence. A number of schools are developing plans and strategies to implement safe schools. These plans work best when they are generated not only by school staff, but also by parents and representatives from community groups and agencies. Although every school's plan for a "safe school" looks different, the key is developing a consensus about what *everyone* wants the school to be like, and the rules that *everyone* is willing to uphold to make this happen.

Joining with the Community

School violence is placing new pressures on schools to reach out to police, gang intervention workers, mental health workers, social service workers, clergy, and the business community. In a city with a large tourist business, close ties to the business community have resulted in guarantees that all the culinary arts program students in the vocational school will receive jobs upon graduation. In another city, parents bringing their children into an elementary school have the option of filling out a form that is entered into the computers of all the public health agencies. Though this raises privacy issues, creating joint centers of information can enhance efficiency for both parents and professionals.

There are several advantages to strategies that connect jobs and services through the school. First, since resources need to be where the students and their parents are, schools are a natural place to consolidate services. Second, finding other agencies that provide services enables schools to put their own money back into education, where it belongs. And third, since violence is not a school problem—it is a community and societal problem—its solution has to draw in a wider circle of participation.

Finally, whatever the specific strategy, there is a need to bring back a communal feeling to the schools, and once again to root the schools in their communities. To do this, students, school staff, parents, neighbors, and other interested citizens all have to become part of the fabric of the schools—stakeholders in its future and in the future of its students.

— Carol Ascher

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The Center for the Revitalization of Urban Education (CRUE) helps coordinate and strengthen the National Education Association's efforts to improve urban education. CRUE's mission is (1) to identify and analyze critical urban issues and special needs of educators and students in urban areas; (2) to develop and maintain collaborative relationships between NEA affiliates, political, business and community groups; and (3) to provide a networking system on urban education issues among NEA affiliates. Please contact E. LaMar Haynes, Director, (202) 822-7155 for additional information.

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ERIC DIGEST
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National Standards for School Health Education

Liane M. Summerfield

Why Have Health Instruction in the Schools?

The Centers for Disease Control and Prevention (CDC) finds that most major health problems in the U.S. today are caused by six categories of behavior: behaviors that lead to intentional and unintentional injuries; smoking; alcohol and other drug use; sexual behaviors leading to sexually transmitted diseases, HIV infection, and unintended pregnancy; poor nutrition; and lack of physical activity (Kolbe, 1993a). According to Kolbe (1993a), behaviors and attitudes about health that are initiated during childhood are responsible for most of the leading causes of death, illness, and disability in the U.S. today. Comprehensive school health education programs represent one effective way of providing students with the knowledge and skills to prevent health-impairing behaviors.

Research on the Ability of Health Instruction to Change Children's Health Status

Health education works. Hundreds of studies have evaluated health education and concluded that it is effective in reducing the number of teenage pregnancies, decreasing smoking rates among young people, and preventing the adoption of many high-risk behaviors. But its effectiveness depends upon factors such as teacher training, comprehensiveness of the health program, time available for instruction, family involvement, and community support (Gold, 1994; Seffrin, 1990). And, sequential school health education programs for K-12 students have been found to be more effective in changing health behaviors than occasional programs on single health topics (Kolbe, 1993b).

The Louis Harris survey of over 4,700 students in grades 3 through 12 who were attending 199 public schools found that health knowledge, attitudes, and behaviors improved with increasing years of health instruction (Louis Harris, 1989).

The School Health Education Evaluation (Connell, Turner, & Mason, 1985), which looked at four different health curricula for 30,000 4th through 7th graders in 20 states, found:

- Students receiving health instruction had higher knowledge scores than students with no health instruction, with the greatest differences seen in knowledge of substance use and abuse;
- Knowledge, attitudes, and skills improved even with minimal instruction, but gains were most apparent when students received at least 50 hours of health instruction per school year; and
- More hours were needed to improve attitudes than to enhance health knowledge and practices.

National Standards for Health Education

To assist schools in developing and evaluating comprehensive health education programs, the Joint Committee for National School Health Education Standards (1995) has developed guidelines for school health standards. The committee was made up of representatives from the Association for the Advancement of Health Education, the American Public Health Association, the American School Health Association, and the Society of State Directors of Health, Physical Education and Recreation and was sponsored by the American Cancer Society.

The committee's goal was to emphasize the need for school health education and create a framework for local school boards to use in determining content of the health curriculum in their communities. There are seven broad standards that promote health literacy, which is *the capacity of individuals to obtain, interpret, and understand basic health information and services and the competence to use such information and services in ways which enhance health* (Joint Committee, 1995, p. 5). For each standard there are performance indicators to help educators determine the knowledge and skills that students should possess by the end of grades 4, 8, and 11.

- Standard 1: Students will comprehend concepts related to health promotion and disease prevention. Performance indicators for this standard center around identifying what good health is, recognizing health problems, and ways in which lifestyle, the environment, and public policies can promote health.
- Standard 2: Students will demonstrate the ability to access valid health information and health-promoting products and services. Performance indicators focus on identification of valid health information, products, and services including advertisements, health insurance and treatment options, and food labels.
- Standard 3: Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks. Performance indicators include identifying responsible and harmful behaviors, developing health-enhancing strategies, and managing stress.
- Standard 4: Students will analyze the influence of culture, media, technology, and other factors on health. Performance indicators are related to describing and analyzing how one's cultural background, messages from the media, technology, and one's friends influence health.
- Standard 5: Students will demonstrate the ability to use interpersonal communication skills to enhance health. Performance indicators relate to interpersonal communication, refusal and negotiation skills, and conflict resolution.
- Standard 6: Students will demonstrate the ability to use goal-setting and decision-making skills to enhance health. Performance indicators focus on setting reasonable and attainable goals and developing positive decision-making skills.
- Standard 7: Students will demonstrate the ability to advocate for personal, family, and community health.

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Performance indicators relate to identifying community resources, accurately communicating health information and ideas, and working cooperatively to promote health.

Health Curriculum Content

The school health education program should be based upon local needs— the health behaviors and problems within the school population—and national data suggesting the health status of children and youth. Experts have identified 10 content areas as necessary for a comprehensive school health education program (American School Health Association, 1994):

- community health
- consumer health
- environmental health
- personal health and fitness
- family life education
- nutrition and healthy eating
- disease prevention and control
- safety and injury prevention
- prevention of substance use and abuse (alcohol, tobacco, drugs)
- growth and development

The objective is to offer an ongoing, sequenced, and developmentally appropriate program that is consistent with community needs and providing at least 50 hours per year of health instruction. Some references for identifying curricula are listed at the end of this Digest.

Teaching Practices that Develop Health Knowledge, Attitudes, and Skills

At the elementary and middle school level, the classroom teacher is expected to teach health as a curricular area like math, reading, and social studies. At the high school level, 39 states require that health be taught by a teacher who is certified in health education (Allensworth, 1993). Many teachers avoid health subjects because of inadequate undergraduate training.

The most effective methods of instruction in health are student-centered approaches: hands-on activities, cooperative learning techniques, and activities that include problem-solving and peer instruction to help students develop skills in decision-making, communication, setting goals, resistance to peer pressure, and stress management (Kane, 1993; Seffrin, 1990). As with other instructional areas, the teacher should promote parental involvement by sending materials home, involving parents in classroom activities, and creating assignments that involve parents.

Because of time limitations in the school day, some teachers find it helpful to infuse health topics into other subject areas. For example, a unit on smoking might include (Allensworth, 1993):

- investigating the effects of smoking on body systems (science);
- developing, administering, and analyzing a survey on student attitudes about smoking (math);
- writing an antismoking advertisement (language arts);
- examining the economics of smoking in states where tobacco is a significant crop (social studies).

Implications for Teacher Education

Teacher preparation is critical to successful school health education programs. If children and youth are to achieve health literacy, teacher preparation programs will need to support preservice health education that addresses:

- health content
- teaching methods for teacher education
- including health content across the curriculum
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ERIC DIGEST

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Peer Conflicts in the Classroom

Edyth J. Wheeler

If teachers and parents learn to understand children's earliest peer conflicts, they will be in a better position to help young children break the current cycle of widespread violence. Traditionally, many adults have viewed conflicts between children as undesirable and have tried to prevent them or to intervene. Recent theory and research, however, suggest that peer conflict contributes to children's development and represents an important form of social interaction (Rende & Killen, 1992; Ross & Conant, 1992). Early childhood educators are beginning to focus on helping children develop conflict resolution strategies independent of adult intervention (Ramsey, 1991). Parents too can focus on helping their children develop such strategies.

The Structure of Children's Peer Conflicts

The structural features—the "anatomy"—of a conflict are usually described as issues, strategies, and outcomes (Ross & Conant, 1992). *Issues* include control of the physical or social environment, such as control of objects or physical space. Killen and Turiel (1991) categorize children's conflict as involving issues of morality (such as physical harm and individual rights) and of social order (such as rules for activities).

Conflict *strategies* include physical and verbal tactics that can be both aggressive and nonaggressive. Researchers concur that children's conflicts infrequently include aggression (Killen & Turiel, 1991). Nonaggressive physical strategies include taking a toy or entering a play space. Verbal strategies range from simple opposition to complex reasoning and negotiation. Children may use teasing and superiority of size, age, physical ability, or knowledge (Wilson, 1988) to establish control, or they may seek adult intervention to resolve a conflict. Killen and Turiel (1991) found, however, that children were capable of resolving conflicts on their own, and that adult intervention usually led to an adult-generated resolution.

The *outcomes* of a conflict may be (1) an unresolved situation, as when children simply drop the issue; (2) an adult-imposed solution; (3) the submission of one child to another; or (4) a mutually agreed-on solution achieved through bargaining, compromising, or finding alternate activities (Wilson, 1988).

Researchers have explored the relationships among the issues, strategies, and outcomes of children's conflicts. *Issues* often determine *strategies*. For example, object conflicts tend to involve physical resistance, although as children grow older, they begin to use verbal protest more frequently (Ross & Conant, 1992). Research also indicates that children's resolution *strategies* are related to the *outcomes* of their conflicts. Conciliatory behaviors are associated with peaceful outcomes and with continued interaction following the conflict. Physical domination often leads to ending the interaction.

In a study of 69 children in three preschools, Killen and Turiel (1991) found that, during peer group activity, more conflicts were unresolved than resolved; and among conflicts that were resolved, few resolutions were adult generated. In free play settings, adults resolved conflicts more frequently than children, including at least 60 percent of conflicts that involved physical harm and social order.

The Role of Age and Gender in Conflict

Studies of young children's conflicts indicate that age makes a difference in conflict resolution. Younger children are more often involved in object issues and use more physical strategies, while older children disagree over social issues and use more verbal negotiation and reasoning (Ross & Conant, 1992). In a study by Laursen and Hartup (1989), younger children used more conciliatory strategies in nonaggressive conflicts, while older children relied upon insistence. This and other studies suggest the possibility of a developmental sequence.

The role of gender in children's conflicts is not as clear as the role of age. According to some researchers, boys engage in more conflicts than girls and differ in their issues and strategies. Other researchers, however, have found no differences between girls and boys in issues, amount of conflict, or use of aggression (Laursen & Hartup, 1989).

Contexts of Children's Conflicts

Children's conflicts during play are influenced by the play setting, the children's prior relationship, and the presence of adults. Conflicts between children playing in isolated pairs differ from those between two children in a group setting. In a preschool classroom, for example, children have the option of walking away and finding a new activity. In pair play, however, children must persist in resolution efforts to continue to play (Killen & Turiel, 1991). Disputes are more likely to occur in closed play areas with a single entrance, suggesting that poor accessibility to play space may contribute to conflicts.

A consistent finding in research is that children who were playing together before conflict were more likely to resolve their disputes and continue to play afterwards, and that they were more likely to disagree over play decisions than toy distribution (Rende & Killen, 1992), than children who were not playing together prior to a dispute. Laursen and Hartup (1989) found that children who engaged in cooperative play used less aggression in conflict than children who engaged in solitary or parallel play.

The presence of an adult changes the context of children's conflicts. Children take responsibility for their interactions and generate their own solutions more often when an adult is absent (Laursen & Hartup, 1989). Children's conflicts tend to be more aggressive when an adult is present (Killen & Turiel, 1991). When adults provide solutions, they sometimes make mistakes or are inconsistent or biased in the resolutions they impose. Such inconsistency and bias are especially true in parents' dealings with their own children's conflicts.

Implications for Teachers

A number of implications for teachers (and for parents) can be drawn from the research on children's conflicts.

- Teachers need to be aware of children's intentions. Is this conflict one that the children are truly trying to resolve, or is it verbal play? Teachers should help children make clear their own understanding of the conflict.
- Children's ability to resolve conflicts increases as their verbal competence and ability to take other perspectives grow. If the children involved in a dispute are verbal and empathetic, teachers should let them try to work things out themselves.
- Teachers' decisions to intervene should be made after they observe the issues of children's conflicts. Possession issues and name-calling generate less discussion than issues about facts or play decisions.
- Children who explain their actions to each other are likely to create their own solutions. In conflicts characterized by physical strategies and simple verbal oppositions, teachers should help children find more words to use.
- Teachers should note whether the children were playing together before the conflict. Prior interaction and friendship motivate children to resolve disputes on their own.
- Teachers can reduce the frustration of constant conflict by making play spaces accessible and providing ample materials for sharing.
- Children often rely on adults, who are frequently happy to supply a "fair" solution. Teachers should give children time to develop their own resolutions and allow them the choice of negotiating, changing the activity, dropping the issue, or creating new rules.
- Many conflicts do not involve aggression, and children are frequently able to resolve their disputes. Teachers should provide appropriate guidance, yet allow children to manage their own conflicts and resolutions.

Conclusion

Children's conflicts are complex social interactions, embracing a wide range of issues, strategies, and outcomes. These conflicts do not occur in a vacuum: the social and physical contexts are key elements. Studies have described much of what happens in children's conflicts and have identified aspects of children's conflicts that are interrelated. Researchers should continue to strive for an understanding of conflicts that will give children the means to create their own peaceful resolutions.

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ERIC DIGEST

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School Violence Prevention

By Dean Walker

Eighty-nine percent of respondents in 700 cities and towns surveyed by the National League of Cities in 1994 said that school violence is a problem in their community (Randy Arndt 1994). Researchers have identified several major causes for the increase in violent behavior, causes so entangled that attempting to address one while ignoring another is to risk failure altogether. Poverty, racism, unemployment, substance abuse, easy access to weapons, inadequate or abusive parenting practices, and frequent exposure to violence through the media are all culpable (National Association for the Education of Young Children 1993).

Tactics to deal with the burgeoning violence of youth have been mostly one-dimensional, relying on removal of the offender by suspension or placement outside of the mainstream classroom. This can protect other students; however, it has proven ineffective in preventing children from developing criminal careers. Educators and psychologists are eyeing the *prevention* of violent behavior as both a more humane and more cost-effective response to this multidimensional problem (Hill Walker 1994).

What Can Schools Do to Prevent Violent Behavior?

While it would seem that the causes of violence lie outside the influence of schools, a violent incident can raise instructive questions about what the school might have done to prevent it. What is the school's policy on weapons and aggressive behavior? Were students aware of the policy, and is it consistently enforced? How is such behavior supported or discouraged by the school climate and the expectations of the staff and other students? What attempt has been made to teach students nonviolent conflict resolution? Are students appropriately supervised? Have staff members been taught to spot the potential for such incidents and to defuse them? Was there a gang influence in the incident (Joan L. Curcio and Patricia F. First 1993)?

The first step in school-violence prevention is performing a systematic assessment to answer these and other pertinent questions. One way to approach such an assessment systematically is to examine how the peaceful interaction of individuals and groups is facilitated by programs, policies, and processes at three levels: in the classroom, in the school building, and in the district office (Marie Somers Hill and Frank W. Hill 1994).

In the classroom, for example, research indicates that a focus on academic goals, modeling respectful behavior, and quick, nonintrusive intervention in misbehavior all discourage disorder, which can escalate into violence (Diane Aleem, Oliver Moles, and others 1993). The district office can continually train staff in violence-reduction issues and provide human-resource benefits such as personal counseling or liberal leave policies to improve staff morale and functioning (Hill and Hill).

How Are School Climate and School Violence Related?

Studies have shown that schools with low levels of violent behavior are distinguished from those with high levels by a positive school climate where nurturance, inclusiveness, and community feeling are evident. Students who feel recognized and appreciated by at least one adult at school will be less likely to act out against the school ethos of nonviolence (H. Walker).

A schoolwide discipline plan helps foster a peaceful, caring student culture. Structures should be created to achieve two aims: to actively teach and reinforce children in highly visible ways for exhibiting basic prosocial behaviors, and to consistently and fairly hold children accountable for misbehavior (Hill Walker, Geoff Colvin, and Elizabeth Ramsey 1995).

Creating an appealing, noninstitutional atmosphere in the building can contribute to a positive school climate. Quickly repairing vandalism and showing care for the premises discourage further vandalism. Getting students involved with beautifying the building and grounds heightens feelings of ownership and community (Sandra R. Sabo 1993).

What Role Does the Principal Play in Violence Reduction?

The principal can help establish school norms of nonviolence and community by developing sincere, caring relationships with groups of students and individuals. By maintaining a high profile, walking the halls, visiting classrooms, and being accessible to students and staff, the principal reduces the likelihood of antisocial behavior (Stephanie

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Kadel and Joseph Follman 1993).

The principal can encourage a sense of ownership of school programs and policies by sharing power with site-based management teams. This makes it more likely that discipline plans and academic goals will be supported consistently, thus improving school climate (Aleem, Moles, and others).

Finally, the principal can make sure that the roots of violent behavior are comprehensively addressed. He or she must take advantage of federal breakfast and lunch programs, institute antiracism programs, speak out against all harassment, and make social services available to students who need them (Curcio and First).

Can Students Be Taught Nonviolence?

Curricula aimed at teaching children prosocial skills are based on the belief that violent behavior is learned through modeling and reinforcement and that these same processes can be used to teach children nonviolence (Committee for Children 1989). Few tightly controlled studies have been done on the effectiveness of these curricula because of the time and cost involved. But Edward Zigler, professor of psychology at Yale University, advises school officials to use these curricula, saying they "look promising," even though evaluations are not complete (Millicent Lawton 1994).

Schools must take advantage of our proven ability to identify children as young as three who are at risk for delinquency and target these students for early intervention. Hill Walker, associate dean of the College of Education at the University of Oregon, has piloted an early intervention program in Eugene, Oregon. Called *First Steps*, the program enlists school staff and peers to teach and reinforce prosocial behavior. Parents learn to teach their children how to succeed at school (Walker, Colvin, and Ramsey).

Many elementary, middle, and high schools in America have instituted peer conflict-resolution programs. Most begin by training students in empathy, cooperation, and perspective-taking, and all teach a process to help peers settle differences peacefully. Again, formal research on the effectiveness of these programs has been limited, but data are accumulating that show peer conflict-resolution programs reduce discipline referrals; improve the school climate; and increase self-esteem, confidence, and responsibility in the students who go through training (M. Van Slyck and M. Stern 1991).

How Can Schools Reduce Violence by Children with Serious Problems?

When children face poverty or abuse or other problems that ultimately foster violent behavior, schools can collaborate closely with community social-service agencies to provide children and their families with timely and affordable access to counseling, financial assistance, and protection. Parent education at school for families of children who are in trouble can create bonds between family and school that will benefit both (Stephanie Kadel and Joseph Follman 1993).

Sharing information with police and planning antigang interventions with the school community are vital to preventing gang-related youth violence (Robert P. Cantrell and Mary Lynn Cantrell 1993). If a preventative approach to school violence is going to work, schools and communities must stand together in every aspect of its implementation.

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ERIC DIGEST

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Violence and Young Children's Development

Lorraine B. Wallach

Violence in the United States has claimed thousands of lives and annually costs hundreds of millions of dollars in medical care and lost wages. In the context of this digest, the term *violence* is used to refer to child abuse or other domestic conflict, gang aggression, and community crime, including assault. One of the most pernicious consequences of violence is its effect on the development of children. This digest examines the developmental consequences for children who are the victims of, or witnesses to, family and community violence.

Violence in the Preschool Years

Children growing up with violence are at risk for pathological development. According to Erikson's classical exposition of individual development, learning to trust is the infant's primary task during the first year of life. Trust provides the foundation for further development and forms the basis for self-confidence and self-esteem. The baby's ability to trust is dependent upon the family's ability to provide consistent care and to respond to the infant's need for love and stimulation. Caregiving is compromised when the infant's family lives in a community racked by violence and when the family fears for its safety. Parents may not give an infant proper care when their psychological energy is sapped by efforts to keep safe (Halpern, 1990). Routine tasks like going to work, shopping, and keeping clinic appointments take careful planning and extra effort.

When infants reach toddlerhood they have an inner push to try newly gained skills, such as walking, jumping, and climbing. These skills are best practiced in parks and playgrounds, not in crowded apartments. But young children who live in communities racked by crime and menaced by gangs are often not permitted to be out-of-doors. Instead, they are confined to small quarters that hamper their activities, and that lead to restrictions imposed by parents and older family members (Scheinfeld, 1983). These restrictions, which are difficult for toddlers to understand and to obey, can lead in turn to disruptions in their relationships with the rest of the family.

During the preschool years, young children are ready to venture outside of the family in order to make new relationships and learn about other people (Spock, 1988). However, when they live in neighborhoods where dangers lurk outside, children may be prevented from going out to play or even from accompanying older children on errands. In addition, preschoolers may be in child care programs that are located in areas where violent acts occur frequently.

Violence: The School Years

Although the early years are critical in setting the stage for future development, the experiences of the school years are also important to children's healthy growth. During the school years, children develop the social and academic skills necessary to function as adults and citizens; violence at home or in the community takes a high toll.

- When children's energies are drained because they are defending themselves against outside dangers or warding off their own fears, they have difficulty learning in school (Craig, 1992). Children traumatized by violence can have distorted memories, and their cognitive functions can be compromised (Terr, 1983).
- Children who have been victimized by or who have seen others victimized by violence may have trouble learning to get along with others. The anger that is often instilled in such children is likely to be incorporated into their personality structures. Carrying an extra load of anger makes it difficult for them to control their behavior and increases their risk for resorting to violent action.
- Children learn social skills by identifying with adults in their lives. Children cannot learn nonaggressive ways of interacting with others when their only models, including those in the media, use physical force to solve problems (Garbarino et al., 1992).
- To control their fears, children who live with violence may repress feelings. This defensive maneuver takes its toll in their immediate lives and can lead to further pathological development. It can interfere with their ability to relate to others in meaningful ways and to feel empathy. Individuals who cannot empathize with others' feelings are less likely to curb their own aggression, and more likely to become insensitive to brutality in general. Knowing how some youths become emotionally bankrupt in this way helps us understand why they are so careless with their own lives and with the lives of others (Gilligan, 1991).
- Children who are traumatized by violence may have difficulty seeing themselves in future roles that are

meaningful. The California school children who were kidnapped and held hostage in their bus were found to have limited views of their future lives and often anticipated disaster (Terr, 1983). Children who cannot see a decent future for themselves have a hard time concentrating on present tasks such as learning in school and becoming socialized.

- Children need to feel that they can direct some part of their existence, but children who live with violence learn that they have little say in what happens to them. Beginning with the restrictions on autonomy when they are toddlers, this sense of helplessness continues as they reach school age. Not only do they encounter the constraints that all children do, but their freedom is restricted by an environment in which gangs and drug dealers control the streets.
- When children experience a trauma, a common reaction is to regress to an earlier stage when things were easier. This regression can be therapeutic by allowing the child to postpone having to face the feelings aroused by the traumatic event. It is a way of gaining psychological strength. However, when children face continual stress they are in danger of remaining psychologically in an earlier stage of development.

Individual Differences and Resilience

Not all children respond to difficult situations in the same way; there are many factors that influence coping abilities, including age, family reaction to stress, and temperament. Younger children are more likely to succumb to stress than school-age children or adolescents. Infants can be shielded from outside forces if their caregivers are psychologically strong and available to the baby.

Children who live in stable, supportive homes have a better chance of coping because they are surrounded by nurturing adults. If grown-ups are willing to listen to children's fears and provide appropriate outlets for them, children are better able to contend with the difficulties in their lives. Children are more resilient if they are born with easy temperaments and are in good mental health. If they are lucky enough to have strong parents who can withstand the stresses of poverty and community violence, children also have a better chance of growing into happy and productive adults (Garmezy & Rutter, 1983).

Adaptability in Children

Although what happens to them in the early years is very important, many children can overcome the hurts and fears of earlier times. For children living in an atmosphere of stress and violence, the ability to make relationships and get from others what they miss in their own families and communities is crucial to healthy development.

The staff in schools, day care centers, and recreational programs can be resources to children and offer them alternative perceptions of themselves, as well as teaching them skills for getting along in the world. With time, effort, and skill, caregivers can provide children with an opportunity to challenge the odds and turn their lives in a positive direction.

NOTE: This digest is the first in a series of two digests on violence in children's lives.

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Goal 8: Parental Participation

By the year 2000, every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.

Objectives:

- Every state will develop policies to assist local schools and local educational agencies to establish programs for increasing partnerships that respond to the varying needs of parents and the home, including parents of children who are disadvantaged or bilingual, or parents of children with disabilities;
- Every school will actively engage parents and families in a partnership which supports the academic work of children at home and shared educational decisionmaking at school; and
- Parents and families will help to ensure that schools are adequately supported and will hold schools and teachers to high standards of accountability.

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ERIC DIGEST
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The Changing Face of Parenting Education

Sharon L. Kagan

Today's families face monumental stresses associated with daily living. A stagnant economy routinely demands family employment in two or three jobs, leaving little time for effective parenting. Job insecurity often fuels family discontinuity and fragmentation. Unemployment, once the condition of the unskilled, has affected pink and white collar workers, causing more and more parents regularly to face complexities that make nurturing children difficult. Finally, the rise in the number of single parents, many of them teenage or never married, places heavy burdens on families and on society.

As these dramatic demographic changes have occurred, so have equally profound advances in our knowledge about the relationship between demographic conditions, family life, and child outcomes. We know, for example, that economically deprived single mothers are more likely to abuse their children physically (Gelles, 1989), that premature low-birthweight babies born into poverty have a poorer prognosis of functioning within normal ranges (Bradley et al., 1994), and that family income and poverty are powerful correlates of the cognitive development and behavior of young children (Duncan et al., 1994). Conversely, we know that when economic conditions of families are improved, or when services such as parent education and support are offered, outcomes for children, siblings, and families improve (Roberts & Wasik, 1990; Seitz & Apfel, 1994).

Such advances in scientific knowledge—while perhaps not fully understood by parents—have filtered into public consciousness. American parents recognize that parenting is important and that they can benefit from help in meeting their parenting duties. A recent survey by the Public Agenda (1994), for example, noted that one-third of parents feel that teachers today are doing a worse job than teachers of the previous generation. But 55% also said that they themselves are doing a worse job of parenting than their parents did. When asked if a child was more likely to succeed if he or she came from a stable and supportive family but attended a poor school, or if he or she came from a troubled family but attended a good school, 61% of the parents said the child with the more stable family had the better chance of success.

In short, Americans understand the importance of parental competence; that is why they flock to bookstores to buy parenting magazines and why they cruise electronic bulletin boards that offer advice and conversation.

Parenting Education: Timely and Useful

Not insensitive to parents' needs, social service providers are re-contouring their efforts to provide parent education and family support programs. Parent education programs are growing in number and becoming increasingly diverse on virtually every dimension imaginable: sponsorship, funding mechanisms, audience, intensity, staffing patterns, and evaluation strategy.

What binds these diverse programs together? Contrary to the approach used in the days when parent education had a didactic, if not somewhat elitist, orientation, today's approach is more universally adapted. While programs differ in how they carry out activities, they tend to embrace a common set of principles: (1) a focus on prevention and optimization rather than treatment; (2) a recognition of the need to work with the entire family and community; (3) a commitment to regarding the family as an active participant in the planning and execution of the program rather than as a "passive client" waiting to receive services; (4) a commitment to nourishing cultural diversity; (5) a focus on strength-based needs analyses, programming, and evaluation; and (6) flexible staffing (Dunst & Trivette, 1994). In practice, adherence to these principles suggests that today's parent education and support programs endow families with primary responsibility for their children's development and well-being; envision healthy, functioning families as the basis of a healthy society; and understand families as a part of a system that includes neighborhood and community.

Current Issues in Parenting Education

Changes in nomenclature represent one of several current issues in parent education. Terminology used—besides parent education—includes parent empowerment, family education, family life education, parent support, and family support. Some other issues include:

The equity issue. Parent education is alive and well in the marketplace, with affluent consumers exercising choice and purchasing information. Low-income parents have far more limited access to formal parenting programs and less discretionary income with which to purchase information. If parent education is left to market forces alone, the wealthy will become more information rich, while the poor will become comparatively and actually more information poor.

The voluntary/involuntary issue. Presently, most programs are voluntary, with parents determining the nature and

length of their engagement. Increasingly, as programs receive public funding and are designed to ameliorate a particular problem (substance abuse or child abuse, for example), their voluntary nature comes into question. Changing from a voluntary to a required program may alter the intent and nature of family support and violate its basic principles.

The cultural competence issue. Beneath the face of parent education and support lie widely different ideas about what constitutes effective parenting, varying often with cultural predispositions and orientations (Caldwell et al., 1994). Discerning multiple understandings of what constitutes competence across and among cultures and delineating effective ways to build parental competence while nourishing diversity remain a challenge.

The quality issue. Because parent education and family support efforts have grown fairly rapidly, and because they have emerged from different professional traditions, attempts to address program quality are only beginning to emerge. Uncertainty regarding specific variables associated with quality outcomes prevails. Overall, there is little specification regarding the competencies, training, or credentials needed for working in the programs. Tools to evaluate program quality and methods of program accreditation are only now being developed.

The results issue. While it is appropriate to demand results from parenting education and family support efforts, the programs must be recognized for what they are and are not. They do not replace efforts in community development or major employment initiatives. They do enhance parents' overall competence and self-efficacy, knowledge of child development, and capacities to parent more effectively. It is for these outcomes that parent education should be held accountable. To date, only sporadic evaluation of parent education and family support has taken place. Much of the data collected have been on pilot programs and have been conducted by the program developers without random assignment of participants (Powell, 1994). More emphasis needs to be placed on durable, scientific, objective evaluations that measure those results that the interventions are designed to accomplish.

The linkage/coordination issue. The need to engage in cooperative planning, coordination of service delivery, and infrastructure development across programs, communities, and states is becoming acute. In some locales, voluntary networks of parent education and family support programs are developing, fostering linkages that promote coordination and access.

Potential Government Strategies

If parent education and family support are an important national priority, policymakers can support such programs by fostering public-private collaborations and supporting publicly funded efforts for low-income parents. The conditions of families are affected also by every piece of social legislation, and family support can be infused into a broad range of social supports. As the nation considers many new contracts, let us remember that the most significant contract of all is the familial contract we undertake with our children.

Adapted from: Kagan, Sharon L. (1995). On Building Parental Competence: The Nature of Contracts and Commitments. In *The Challenge of Parenting in the '90s*. Washington, DC: The Aspen Institute. PS 023 232.

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Comprehensive Planning: Guidance for Educators of American Indian and Alaska Native Students

by ORBIS Associates

Comprehensive planning for school reform is currently underway at all levels of the educational system, from the training of teachers and administrators, to the organization of schools, to the instructional methods and materials used in classrooms. The purpose of the planning is to help make it possible—through a series of organizational and instructional changes—for *all* children to reach the same high academic standards. Educators and parents of American Indian and Alaska Native (AI/AN) students, as well as other members of tribal communities, must participate in this planning to ensure that the needs of AI/AN students are carefully considered at the *local level.*

This Digest provides brief descriptions of key federal legislation and initiatives calling for school reform. Each description is followed by a series of questions that can help American Indian and Alaska Native communities closely examine local school reform plans and decide if those plans are designed to (1) ensure the academic success of AI/AN students and (2) reflect the views of their community. Current school reform emphasizes "locally determined" decision making, so each community will need to tackle the questions posed in this Digest in different ways. There is no "one best way" to address AI/AN student needs since local circumstances and needs vary from one community to the next.

Goals 2000

When the *Goals 2000: Educate America Act* was passed in 1994, it set the year 2000 as a target date for reaching the National Education Goals of 1990. Under this law, states and school districts are encouraged to use their federal monies in combination with other state and local resources for projects to improve both teaching and learning. The Act also encourages schools to form partnerships with parents, tribes, and businesses, and requires a *school improvement plan* to "reflect the student body representation" (Licitra & Miller, 1994, p. 6). The National Education Goals and the beliefs reflected in the *Goals 2000: Educate America Act* have helped shape much of the school reform effort that has followed.

How many schools with Indian students in your district have Goals 2000 projects? Do those projects reflect Indian community views on schooling? How have parents of AI/AN students helped to develop the School Improvement Plan?

Title I of the *Elementary and Secondary Education Act*

In 1994, Congress passed the *Elementary and Secondary Education Act* (ESEA) as part of the *Improving America's Schools Act* (IASA). The new ESEA is based on the belief that all students can learn and are, therefore, entitled to schooling that helps them strive for and meet high academic standards. To meet this challenge, ESEA (especially Title I, the section of the Act that focuses on serving under-achieving children from low-income families) encourages schools to rethink how all of their local, state, and federal money could better help all students learn at higher levels.

This new legislation reflects a major change in thinking. Now, if all students are not reaching high academic standards, the fault will be seen as resting with the schools, not with the children. The new Act urges schools to consider making several specific types of changes: (1) to give students who need it extra help right in their classrooms instead of pulling them out to work with them separately, (2) to make the school day and/or year longer, and (3) to make sure that the services that children and their families need are better coordinated between schools and community agencies.

The new Title I stresses setting up *schoolwide* programs in schools with 50 percent or more children from low-income families. While some Title I programs will still be *targeted assistance* programs (that is, the old system that singles out certain students for special help), schoolwide programs are encouraged whenever possible (*Federal Register*, 1995). In schoolwide programs, schools are supposed to use Title I money to improve teaching and learning in the entire school. They may also combine most of their federal education monies with other state and local resources to support their comprehensive school reform efforts. In other words, *all* students—not just Title I students—then benefit from Title I money (Pechman & Fiester, 1994, pp. 1-2). *Consolidation of efforts* is to be the game plan. It should be noted, however, that to support strong Indian community control, *Indian Education Act* (IEA, described next) funds *cannot* be put into the schoolwide pot of money without IEA Parent Committee approval.

How many Title I schools in your district have schoolwide programs? How many have targeted assistance programs? How many AI/AN students are in these schools and how are their specific needs served by these programs? Is the Indian community well represented on Title I planning committees, schoolwide committees, parent advisory committees, or other planning efforts?

Indian Education Act

The renewed *Indian Education Act* (IEA), passed in 1994, included many important changes. Unfortunately, these changes are not well known in Indian country. Therefore, they have not yet widely affected the rethinking of education services to AI/AN students *or* the IEA projects. Several new items in IEA deserve special attention.

The number one purpose of IEA is, as always, to meet the "special educational and culturally related academic needs" of AI/AN students (*Congressional Record*, 1994, sec. 9101[1][c]). Yet—just like Title I described above—the 1994 Act requires that IEA grant money be used to

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support school districts in their reform efforts. IEA projects must directly promote the goals of state and local improvement plans. Equally as important, every IEA application for grant money must include a *comprehensive plan* that explains how other federal, state, and local programs, *especially under Title I*, will meet the needs of *all* AI/AN students in the school district. The plan should describe how all school resources will be used to help improve AI/AN student performance *and* how the IEA monies will *add to* (not take the place of) this effort. Notably, the Act also *requires* school districts receiving IEA funds to regularly check the progress of *all* AI/AN students (not just the AI/AN students who receive IEA services) in meeting the goals of the state and local improvement plans (*Congressional Record*, 1994, sec. 9114[b][6][A]). In other words, school districts must show that their efforts for improvement are actually helping AI/AN students achieve high academic performance. *And*, school districts must report on their progress to the community. From now on, Indian communities should be informed exactly how their children are doing in the school system. This information will help communities work closely with schools, on an ongoing basis, to continue improving Indian student performance.

For local Indian Education Act projects, this means all plans now must reflect the same high academic goals adopted under Title I for all other students. For some IEA projects this will require a major change: Projects that are not directly tied to one or more school improvement goal(s)—either academic or behavioral—no longer meet the legislative requirements.

IEA funding is only one program that, when combined with other larger programs, makes up a total school package for meeting AI/AN students' needs. *All* district programs (including IEA) must work together in a unified effort to meet those needs.

Does your IEA project plan support your local or state school reform efforts? Is the IEA project directly tied to specific school improvement goal(s) and does it add to—but not replace—school district responsibilities for educating all its students?

Parent Involvement and Professional Development

Two important focuses of school reform—increased *parent involvement* and *professional development* opportunities—deserve special attention from Indian people. Increased parent involvement is a key feature of the *Elementary and Secondary Education Act*. Districts are urged to set aside money for helping parents learn skills and for family literacy (*Congressional Record*, 1994, sec. 1118[a][3][A]). Also, each school must now write a *Parent Involvement Policy* that describes ways the school will work to increase the role played by parents in all aspects of their children's education. This policy *must* be written with the help of parents and its success must be judged annually. If the plan is found to be ineffective, the school district is responsible for figuring out why and for making needed changes. These new requirements should be a big help to Indian communities for identifying and eliminating barriers that prevent meaningful parent involvement.

Does your district have a written "Parent Involvement Policy"? Has the Indian community helped design and write it? Does the policy spell out ways to break down barriers that keep Indian parents from being involved in ways that really matter?

Quality professional development opportunities are a must for school reform (Darling-Hammond & McLaughlin, 1996). So, school districts are rethinking their plans for such training, especially as to who should receive it and what the content should be. IEA also requires applicants to describe the training opportunities the school district will provide to make sure that "teachers and other school professionals who are new to the Indian community are prepared to work with AI/AN children" (*Congressional Record*, 1994, sec. 9114[b][1][B]). That IEA requirement, however, is *not* stating that IEA's limited monies should be used for this purpose. There are many much larger pots of money to do this; for example, federal money under Titles I and II of ESEA and Title III of Goals 2000, plus state and local sources. IEA funds are better used for direct services to AI/AN students.

As a result of school reform, many teachers and school administrators are facing basic changes in how they do their jobs. Consequently, at this time most professional development training monies are being used to help them during the transition period. But, parents and community members are *also* entitled to be part of school training programs. So parents and Indian community members need to be assertive about their inclusion in school professional development initiatives. (*Congressional Record*, 1994, sec. 1112[b][1][C][A][3], 1114[b][1][D], 1119[d]; U.S. Department of Education, 1996, p. ii).

Is there a professional development plan for your school and did Indian parents or community members help write it? Does the professional development plan include training for teachers and school staff on how to make schools more supportive places for AI/AN student success in meeting high academic standards? Will training opportunities be offered to parents and community members?

Conclusion

Our nation's schools are undertaking school reform so that *all* children can reach high academic standards. This, then, is the challenge: To use this national educational reform movement to dramatically improve AI/AN student performance. To meet this challenge, everyone with a stake in Indian education must actively participate in *all* comprehensive planning efforts. They must ask themselves how they can use this window of opportunity to help more of their students become academic leaders, Merit Scholars, and role models for all other students to follow.

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ORBIS Associates, a nationally recognized Indian-controlled education firm located in Washington, DC, is continuing its 15-year history of developing culture-based academic curriculum, training educators and parents of AI/AN students and their peers, and analyzing school reform policies and practices for effective use with AI/AN students.

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Family Role in Career Development

by Bettina A. Lankard

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Family influence is an important force in preparing youth for their roles as workers. Young people form many of their attitudes about work and careers as a result of interactions with the family. Family background provides the basis from which their career planning and decision making evolve. However, within each family, the level of involvement can vary, offering both positive and negative influences. This *Digest* examines the research on family influences on career development and describes implications for practice.

The Influence of Family Background

"Family background factors found to be associated with career development include parents' socioeconomic status (SES), their educational level, and biogenetic factors such as physical size, gender, ability, and temperament" (Penick and Jepsen 1992, p. 208). In a study of the influences on adolescents' vocational development reported by Mortimer et al. (1992), the variable that had the most effect on educational plans and occupational aspirations was parental education.

Mortimer et al. also report that parents with postsecondary education tend to pass along its importance to their children—a finding supported by other studies. Montgomery (1992) notes that females talented in math viewed their career choices as reflective of interests that stemmed from early family influence and educational opportunities. Marso and Pigge (1994) found that the presence of teachers in the family was a significant factor influencing teacher candidates' decisions to teach. DeRidder (1990), however, points out that lower levels of parent education can retard adolescents' career development. "Being born to parents with limited education and income reduces the likelihood of going to college or achieving a professional occupational goal and essentially predetermines the child's likely vocational choice" (p. 4).

Family income is another aspect of family background that influences the career development of youth, especially for girls (Mortimer et al. 1992). One reason for this may be that families with limited economic resources tend to direct them first to the males of the family, giving less hope and encouragement for further education to the daughters in the family. Also, some parents—especially working class or lower-income parents—may hold values that place girls in the homemaker role and reflect less emphasis on occupational preparation (ibid.). Given this disposition, it is understandable that the self-efficacy of girls with respect to career opportunities is linked to the economic support they can expect to receive from their parents.

The Influence of Family Processes

Although much of the research on the role of family in vocational and career development has focused on family background, the investigation of family processes viewed in relation to life roles offers additional insight into the influences of the family. Family processes of interaction, communication, and behavior influence what the child learns about work and work experiences. Attitudes about school and work, educational and career goals and aspirations, and values have a long-term impact on a youth's career choices, decisions, and plans. "Parents as daily models provide cultural standards, attitudes, and expectations and, in many ways, determine the eventual adequacy of self-acceptance and confidence, of social skills and of sex roles. The attitudes and behaviors of parents while working or discussing their work is what the children respond to and learn" (DeRidder 1990, p. 3).

Through the process of educating their children about life roles, parents can influence the employability skills and values that children subsequently adopt. Grinstad and Way (1993) report one mother's message to her daughter on the theme of becoming self-sufficient:

> You have to have a way to take care of your family. And she (her mother) says you cannot depend on a man. And she said you have to think about number one and that's you. And she said how are you going to make a living, how are you going to support your children, if you don't have some kind of training. (p. 50)

The interaction of many individual variables in family process is a significant factor to consider in studying family influence on career development. Middleton and Loughead (1993) suggest that adolescents' career aspirations be examined from an interactionist perspective rather than a unilateral process of influence, "focusing on the context and situations in which adolescents' career development occurs" (p. 163).

Ethnic Minority Parents and Career Development

Parents from certain minority groups have a great influence on the educational and occupational decisions of both boys and girls in the family. Two very different examples are Mexican American and Korean parents. Clayton et al. (1993) found that "Mexican American parents want more education for their children than their children want for themselves" (p. 4). This is especially significant from a population that typically is undereducated and has high unemployment and dropout rates and low occupational status (ibid.).

Although the aspirations Mexican American parents hold for their children may be high, continuing education is often unavailable due to lack of funds. In fact, "50 percent of the 8th and 12th graders and 55 percent of the community college students" in Clayton et al.'s (1992) study cited lack of funds as a primary factor in their plans for continuing education (p. 36). Mexican American parents should be made aware of the availability of financial aid that could support their children's continuing education.

Whereas Mexican American parents are focused on the role of continuing education in the career development process, Korean parents focus on career selection. "The strong desire of Korean immigrants for their children to be professionals and earn money and prestige is conveyed either in a rather demanding form or in a more subtle form that is just as clear" (Kim 1993, p. 237). The pressure to choose certain careers is often initiated when the child is quite young. Stories by college students of Korean descent, reported by Kim, confirm that their career choices both "explicitly and implicitly reflect the cultural model of success their parents share" (p. 239).

One student described how, when he was still young, his father announced at a potluck dinner that "Tim will be a lawyer and Don will be a doctor." Another student described how her father introduced each member of their family to his guests by stating what career each would pursue before any of them had made a career choice: "Ron, the future doctor; Ben, who will

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be an engineer before you know it, and Carrie, who is going into business" (p. 239). "As he announces the children's career plans proudly in public and as the guests at the party recognize and envy his success, the Korean immigrants' cultural model of success is also recognized, reinforced, and transmitted" (ibid.). As happens in other cultures, Korean parents distinguish between boys and girls in the careers they assign to their children. "Girls can choose careers that are considered less stressful and less demanding and that have more flexible schedules so that they can combine families with careers" (p. 241).

Negative Effects of Parental Influence

Middleton and Loughead (1993) present three categories to describe types of parental involvement in adolescents' career development: (1) positive involvement, (2) noninvolvement, and (3) negative involvement. The greatest anxiety adolescents feel about their career decisions or exploration, quite understandably, is in response to parents' negative involvement.

Parents in the "negative involvement" category are often controlling and domineering in their interactions with their children. The children of such parents often pursue the careers selected by their parents rather than those they desire so as not to disappoint their parents or go against their wishes. Likewise, they feel a strong sense of frustration and guilt when they do not meet their parents' expectations.

The burden of following a parent's narrowly defined expectations of success has resulted in "mental health problems, estranged parent-child relationships, or in socially delinquent behaviors" (ibid., p. 243). Penick and Jepsen (1992) note that "adolescents from enmeshed families may have difficulty mastering career development tasks because they are unable to distinguish their own from parental goals and expectations" (p. 220). Disengagement of family and adolescents has similarly negative effects. "Adolescents from disengaged families may lack familial support and interaction, resulting in limits on self-knowledge and task orientation that interferes with mastery of career development tasks" (ibid.).

Implications for Practice

Structuring or guiding parental involvement in adolescent career development is increasingly seen as an important element of a school's career counseling. "Previous research has suggested that educational institutions are not the only source of learning related to occupational choice and enactments in this society. It has been found that the family plays in important role in the transmission of values such as independence, ambition, career orientation and actual career choice" (Grinstad and Way 1993, p. 67).

DeRidder (1990) suggests that counselors work directly with parents, collaborating with them and helping them to improve their effectiveness in guiding their children. He encourages parents not only to communicate about work and careers with their children, but to show faith in their children's abilities to be successful, providing them with encouragement and information. "They should help their children learn that basic work attitudes of promptness, respect, responsibility, and interest in schoolwork are expected both at home and at school" (ibid., p. 4).

Career development professionals can help parents by providing them with information and support. Middleton and Loughead (1993) recommend that counselors meet with parents "individually or collectively to disseminate information on how to facilitate their adolescents' career development and familiarize them with career resource materials" (p. 166).

Within the school setting, Grimstad and Way (1993) suggest that "vocational education at all levels should be placed within a contextual framework where the work of the world and the work of the family are integrated and explored simultaneously" (p. 67). By increasing communication between home and school regarding career development, it is possible that the positive aspects of family influence can be enhanced and the negative aspects can be offset, improving the career development outcomes of the workers of the future.

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ERIC DIGEST

EDO-RC-95-8 October 1995

Forging Partnerships Between Mexican American Parents and the Schools

by Nancy Feyl Chavkin and Dora Lara Gonzalez

According to the Bureau of the Census (1994), there are approximately 13 million Mexican Americans in the United States. In her review of the status of education for Mexican American students, Sosa (1993) reports alarming statistics—a decline in high school completion rates, a steady rise in the dropout rate, and high numbers of students two or more years behind grade level. In light of these facts, educators have an educational imperative to look for new ways to work with Mexican American families. This digest describes research supporting family participation in students' education. It then describes barriers to participation faced by many Mexican American parents and successful programs and strategies for overcoming those barriers. Finally, the benefits of two-way communication and school-family partnerships are described.

Research on Parental Involvement and Student Achievement

Research has shown that one of the most promising ways to increase students' achievement is to involve their families (Chavkin, 1993; Henderson & Berla, 1994). Herbert Walberg (1984) found that family participation in education was twice as predictive of academic learning as family socioeconomic status. Establishing partnerships with families has many benefits for schools and families, but Epstein says, "the main reason to create such partnerships is to help all youngsters succeed in school and in later life" (1995, p. 701).

Barriers to Parental Involvement

For many Mexican American parents, lack of involvement in their children's education is erroneously seen as lack of interest, but Montecel et al. (1993) present evidence that Mexican American parents do care about their children's education. The reasons for limited involvement include beliefs that the roles of home and school are sharply delineated. Mexican American parents see their role as being responsible for providing basic needs as well as instilling respect and proper behavior. They see the school's role as instilling knowledge (Nicolau & Ramos, 1993). They believe that one should not interfere with the job of the other. Nicolau and Ramos compare Mexican Americans' respect for teachers with the awe that most Americans have (or used to have) for doctors or priests.

Other barriers to parental involvement include a negative view of the school system, past negative experiences with education, and language barriers. Often parents view the school as a bureaucracy controlled by non-Hispanics. The school often reminds Mexican American parents of their own educational experiences including discrimination and humiliation for speaking Spanish. Many times the lack of bilingual staff can make parents feel powerless when they are attempting to resolve problems or advocate for their children.

Opening the Doors to More Parental Involvement

How then can schools open the doors to more parental involvement and build partnerships with Mexican American families? Begin by making parental involvement easy and interesting, at a pace that is comfortable for parents. Outreach efforts can and will work, but they must be done in a culturally sensitive manner and begin with a strengths perspective. Mexican American families have many strengths and these strengths need to be recognized from the beginning.

Nicolau and Ramos' (1993) examination of 42 projects provides helpful insights that can inform practice. Communication should be a major focus of the involvement effort. Reception areas in schools should include bilingual staff; telephone calls and written communication should be available in Spanish. For some parents, home visits or visits at a neutral site, such as a community center, offer a less threatening environment. In general, the more personal the approach, the better it works for Mexican American parents. Written correspondence is not as effective as the personal conference; in fact, it is wrong to assume that all families are literate.

If meetings seem appropriate, invitations should be extended by parents to parents, preferably neighbor to neighbor. A good idea for a first meeting is to ask parents who are more familiar with school personnel to bring three friends to a meeting at a community center outside the school. Meetings should be informal and based on the interests of the parents, with transportation and child care provided.

Selecting Programs and Activities

There are many programs and activities for parents and schools to consider. Some focus on family involvement in home learning activities and others focus on parents' continued education. Each school must select and adapt activities that best match the interests and needs of their families. The programs described below are only a sample of the successful approaches being used across the country (Goodson, Swartz, & Millsap, 1991).

- Project FIEL (El Paso, Texas) was begun in 1985 and is in eight elementary schools in El Paso. This intergenerational literacy program involves limited-English-proficient parents and their kindergarten children in oral language, story writing, reading, discussions, and at-home activities.
- Prestame una Comadre (Springfield, Illinois) means "loan me a godmother" in Spanish and works with migrant Head Start families. Social workers conduct home visits as often as three times weekly and hold small group meetings. Families work on increasing self-reliance, learning about child development and education, and improving family functioning.

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- Academia del Pueblo—developed by the National Council of La Raza—provides afterschool and summer classes for Hispanic children, monthly parent groups, and literacy classes three times a week. The program operates at the Guadalupe Center, a multiservice organization in Kansas City, Missouri.

- McAllen Parental Involvement Program (McAllen, Texas) includes three core activities: Systematic Training for Effective Parenting (PECES is the Spanish version of this commercially available curriculum), evening study centers, and parent meetings on a variety of topics.

Some effective programs are part of a national or state network or are supported by private funds. ASPIRA Parents for Educational Excellence (APEX) trains Latino parents to become effective advocates for their children at home and at school. The Hispanic Policy Development Project has worked with hundreds of parents using an enrichment model rather than a deficit approach. Project AVANCE, a privately funded program in San Antonio, Texas, uses door-to-door recruitment strategies as part of its outreach to develop parenting skills among low-income Mexican American mothers. Mother-daughter programs, developed at Texas universities, work to expand the role of Hispanic women by exposing them to nontraditional roles, campus field trips, and career activities. Empowerment programs such as Comité de Padres Latinos in Carpintería, California (Delgado-Gaitán, 1991), emphasize treating parents as valued participants and often lead to active participation by parents.

Using the Partnership Approach

Sustaining family involvement requires a commitment to open, continuous, two-way communication with Mexican American families. Most schools have established methods of one-way communication with parents, but the need for more two-way communication cannot be stressed enough. It is critically important for educators to take the time to listen to parents. The attitudes and practices of teachers and principals make a difference in the amount of parental involvement and in the achievement of students (Dauber & Epstein, 1993). Sometimes educators overlook what they can learn from Mexican American families. These families are rich sources of information that can be used in the classroom. Parents have interacted with their children, and they know many of their learning styles as well as their strengths and weaknesses. Parents also know the community.

Partnerships with families require all participants to share responsibility for educational outcomes. This perspective represents a major shift for schools from merely delivering services to students to taking active, integrated roles that validate the cultural and social experiences of families. To succeed in this partnership role, staff need to ask parents for their ideas, meet with parent and community representatives to define goals, and develop a plan for parent and community involvement.

Training can help faculty and family members take on new roles needed for effective partnerships. Ongoing partnerships need evaluation and frequent checkpoints to see if their goals and objectives are being met and if those goals and objectives are still appropriate. Keeping programs flexible helps everyone adjust to changes within the student body, families, the school staff, and the community.

Conclusion

There is a big difference between the rhetoric of partnerships and the activity of partnerships. Educators must truly believe and act on the belief that parents are their children's *first* teacher and the *only* teacher that remains with a child for a long period of time. Educators must discard the old deficit model of working with families and, instead, operate on an enrichment model founded on the belief that parents truly want the best for their children. Not only must educators tell parents that they are equally as important as the school, they must tell students how important their homes and communities are. Having a partnership allows educators to tap a rich source of cultural knowledge and personal experiences. Mexican American families want their children to succeed in school, and educators have an important responsibility to work with these students and their families.

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ERIC CLEARINGHOUSE ON LANGUAGES AND LINGUISTICS
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Digest

February 1994

Funds of Knowledge: Learning from Language Minority Households

(EDO-FL-94-08)

National Center for Research on Cultural Diversity and Second Language Learning

This Digest is based on a report published by the National Center for Research on Cultural Diversity and Second Language Learning, *Teacher Research on Funds of Knowledge: Learning from Households*, by Norma González, Luis C. Moll, Martha Floyd-Tenery, Anna Rivera, Patricia Rendón, Raquel Gonzales, and Cathy Amanti. Copies of the report are available for $4.00 from Center for Applied Linguistics, NCRCDSLL, 1118 22nd Street NW, Washington, DC.

An underlying assumption of many educational institutions has been that linguistically and culturally diverse working-class students do not emerge from households rich in social and intellectual resources. This inaccurate perception, that diverse minority students have language disadvantages and deficiencies in school-sanctioned knowledge that they bring from the home to the classroom, has too often led to lowered academic expectations for these students.

This digest describes a research model that has shown that classroom practice can be developed, transformed, and enriched by drawing upon the existing *funds of knowledge* in minority students' households. Funds of knowledge refers to those historically developed and accumulated strategies (e.g., skills, abilities, ideas, practices) or bodies of knowledge that are essential to a household's functioning and well-being (for details, see Greenberg, 1989; Vélez-Ibáñez & Greenberg, 1992). Through participant-observer visits to minority student households, researchers and teachers became aware of these funds of knowledge.

Although teachers have traditionally made home visits to discuss a particular student problem, to pinpoint difficulties with a particular subject matter, or to provide suggestions to parents on helping children with homework, in this model, teachers entered the homes with the purpose of identifying and documenting existing knowledge. They discovered that funds of knowledge are abundant and diverse and may include such areas as farming and animal husbandry, construction, trade, business, and finance. Additionally, teachers who have visited working-class minority households while engaging in collaborative ethnographic reflection have found that pivotal and transformative shifts take place in teachers and in relations between households and schools and between parents and teachers (see González & Amanti, 1992; Moll, Amanti, Neff, & González, 1992).

Researching Funds of Knowledge

A research project carried out in Tucson, Arizona brought teachers and university-based researchers in education and anthropology together to enter minority households and discover knowledge and other resources therein. The project had three main components:

- **Community:** an ethnographic study of the origin, use, and distribution of funds of knowledge among households in a predominantly Mexican working-class community of Tucson, Arizona;
- **After-school teacher labs:** study groups created to enhance the collaboration between teacher-researchers and university-based researchers, to discuss research findings, and to plan, develop, and support innovations in instruction;
- **Schools:** classroom studies to examine existing methods of instruction and to implement innovations based on the household study and conceptualized in after-school labs.

The community component involved researchers and teachers entering households for the purpose of discerning the household's sociopolitical and economic context, that is, its origins and development, and social and labor histories. Additionally, researchers and teacher-researchers looked at the ways families develop social networks with their environments and with other households, focusing on how these social relationships can facilitate the development and exchange of resources, including funds of knowledge. They found that these relationships are often reciprocal in that each exchange with kinsmen, friends, neighbors, or teachers results in the development or reinforcement of mutual trust. This trust was established and reinforced as the participants shared in practical activities (e.g., home and auto repair, animal husbandry, music) that constantly provide contexts in which learning can occur (Moll & Greenberg, 1990).

Specifically, teachers in the Tucson project chose two or three students each at their own discretion. They then conducted three two-hour interviews with each student and his or her family. After each interview, the teachers wrote field notes for discussion in the after-school labs. Also, some teachers wrote a personal field journal to help monitor the progress of their own reflexive process.

The after-school labs provided a setting for forming strategic connections between household fieldwork and classroom practice. Teachers and researchers in the Tucson project met every two weeks to analyze a combination of ethnographic field methods and incorporate participant-observation, open-ended interviewing strategies, life histories, and case studies into the joint inquiry of household and community ethnography. By this means, teachers and researchers shared their observations and experiences, taking turns mentoring each other with the common goal of refining methodology, interpretation, and practice (see González & Amanti, 1992).

Classroom applications emerged from these after-school sessions: ways to weave the knowledge about family and school matters exchanged between the teachers and the families into academic content and lessons. For example, one teacher utilized her awareness of one student's experiences with selling candy from Mexico in the United States by creating a series of interdisciplinary lessons centered around the theme of candy production. During this time, it was discovered that one parent knew how to make Mexican candy, and came to the class to explain the process and help the students make their own candy. By the end of a week, the class had

studied math concepts (e.g., average number of ingredients in U.S. candy compared to Mexican candy), science concepts (e.g., chemical content of candy), health concepts (nutrition), consumer education (how to choose which candy is best), cross-cultural practices in the production of candy, marketing and advertising (e.g., how to price their own candy), and food production. (See Moll et al., 1992 for more information.)

Teachers as Learners and Reflexive Practitioners

Teachers who implement this research model may initially have difficulty entering the homes and reporting their observations and insights as researchers. First, they must often struggle to cast off the notion of educational research as having to be based on quantifiable variables that are meticulously controlled. The teachers need to recognize that reflexively oriented work needs to begin with "the understanding that systematic thinking about one's own experiences is a valid source of some knowledge and insight" (Segal, 1990, p.122).

Second, they must overcome the discomfort of entering a household, as one teacher in the Tucson project explained, "like a private investigator," asking a wide range of questions, from where the family members work to what they are cooking for dinner that evening. However, researchers have noticed that teachers, by virtue of their role in the children's lives, have more ready entrée to the households than anthropologists do. Teachers in the Tucson project were welcomed into the households with respect and honor, and the families evinced no suspicion of motives or mistrust of how the information gathered was to be used.

Third, teachers may have to overcome the possibility of gaining understanding and then falling into the trap of inaction. Realization of the formidable social and structural limitations and challenges that these families face can lead to a feeling of helpless pessimism. However, once the teachers get to know their students and their families better and engage in reflecive discourse in after-school labs this hopelessness can be dispelled. As a result, teachers are more likely to view the households as repositories of funds of knowledge capable of providing opportunities for learning than to see them as hindrances to academic progress.

A fourth difficulty of becoming a teacher-researcher is that significant time and energy outside of the classroom are required. This model requires many after-school hours spent conducting interviews in the home and writing and discussing observations and insights in the labs. Yet, in spite of the strain of the tasks, the teachers reported it was a worthwhile process, since they were able to gain insights that might have otherwise been missed. Moreover, the study groups helped facilitate these insights by offering a safe, nonjudgmental environment for thinking aloud about classroom practice as well as about household functions.

Funds of Knowledge as Transformative Principle

Teachers have voiced two underlying transformative potentials in viewing the households as repositories of funds of knowledge. The first challenges traditional notions of culture as only being represented through dances, food, folklore, and the like. As a result of these home visits, teachers begin to view culture as a dynamic process rather than a static end state. Teachers in the Tucson project learned, among other things, how households network in informal market exchanges and how cross-border activities enabled their students to act as mini-ethnographers. They also recognized that students acquire a multi-dimensional depth and breadth from their participation in household life (Moll et al., 1992).

The second transformative principle of this research debunks the pervasive idea that linguistically and culturally diverse working-class minority households lack worthwhile knowledge and experiences. Teachers who have participated in these visits have been changed as a result of getting to know families that have survived against overwhelming odds or made great sacrifices to gain a better education for their children. Consequently, these teachers now view their students with more respect and understanding, and are better able to tie the academic content to the formerly hidden talents and abilities they have discovered in their minority students.

Conclusion

As a result of these research activities, teachers have come to view their students as competent participants in households rich in cognitive resources, and have consequently raised their expectations of their students' abilities. While it is generally advisable to tailor the project model to the particular social and historical conditions of the site, the following minimal conditions are suggested for teachers who may want to plan and implement similar funds of knowledge research projects:

- Theoretical teacher preparation—believing that households contain abundant social and intellectual resources;
- Home visits as participant-observers—entering the home as a learner, willing to interact, prepared to document what is learned;
- Teacher labs—acting as a center for discussion, reflection, analysis, and a catalyst for ideas about teaching; and
- Voluntary teacher participation—allowing teachers to have maximum control over the project so the work does not become an undesirable imposition.

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Grandparents as Parents: A Primer for Schools

Dianne Rothenberg

An increasing number of American grandparents are finding their later years different from what they expected. Instead of a quiet retirement, sweetened by delights of occasional visits with grandchildren, many grandparents have taken on the role of surrogate parents to their grandchildren. Reasons behind this trend involve a variety of family circumstances, including the death of one or both parents, parental abandonment, the high incidence of divorce, an increase in the number of never-married mothers (especially teen mothers), parental imprisonment, drug addiction, or mental illness. The AIDS epidemic also plays a role in this increasing shift of responsibility for child rearing. The Orphan Project of New York City (1995) estimates that 75,000 to 125,000 children will be orphaned by the year 2000 because their mothers have died of HIV/AIDS.

Recent legislative activity is also likely to contribute to an increase in the number of grandparent–grandchild families in the future. The amended September 1995 Social Security Act requires states to specify adult relatives as the first foster care option; the Kinship Care Act of 1996 (introduced by Senator Wyden of Oregon and recently referred to the Senate Committee on Finance) puts grandparents first in line as potential foster care parents and adoptive parents for grandchildren who, for safety reasons, have been removed from their parents' home.

In short, while grandparents have often raised their grandchildren in times of family crisis, the proportion of families in crisis situations is growing. A 40 percent increase in grandchildren living in their grandparents' homes, many without their parents, was reported between 1980 and 1990 (de Toledo & Brown, 1995). Families made up of grandparents and their grandchildren are just one of the diverse family structures with which schools are learning to work.

The Demographics of Grandparents as Parents

The National Center for Health Statistics (Saluter, 1996) reported that 3.735 million children under the age of 18 (5.4 percent) live in the home of their grandparent or grandparents, and that black children are more likely (13 percent) to live with a grandparent than white children (3.9 percent) or Hispanic children (5.7 percent). While nearly half the grandparent households with a grandchild include the child's mother, about a million families in the United States are made up of grandparents raising their grandchildren without one of the children's parents (Takas, 1995). Thus, about 1 in 20 children under 18 lives in a home headed by a grandparent without parents present.

Grandparents serving as surrogate parents represent all socioeconomic and ethnic groups. Most families headed by grandparents live in an urban setting and have less than a high school education, and more such families live in the south (57 percent) than in all other areas of the United States combined (Turner, 1995).

How Schools Can Help

Schools can contribute significantly to helping grandparents cope with the stresses of parenting a second time around. As a basis for understanding and helping, school personnel may need to learn to recognize and accept strong feelings experienced by each member of the grandparent–parent–child triad. *Grandparents* (even those who find great satisfaction in raising their grandchildren) often feel disappointment mixed with anger, blame, guilt, and serious concern about family finances. *Parents* usually have ambivalent feelings of gratitude and resentment, as they grieve the loss of their child even if they recognize that the decision to remove the child from their care is in the child's best interest. Often, resentment deepens as estrangement widens. *Children* raised by grandparents may express feelings of abandonment, even though they are grateful to their grandparents for taking care of them (Saltzman & Pakan, 1996). Grandparent and grandchild interactions with noncustodial parents can be supportive or damaging to all the parties involved.

School Strategies Intended To Help Grandparents

Schools can use many strategies to support grandparents who are working to raise and educate their grandchildren. Many schools may find the following list of suggestions useful.

Examine school policies on enrollment. Existing policies may need revision to accommodate the realities of children living with their grandparents. For example, in some districts, once the grandparent has informal authority from the parent or legal authority, he or she is able to enroll the child in school, review the child's records, and make any requests or decisions about the child's education (American Association of Retired Persons [AARP], 1993). In other districts, formal guardianship is required for anyone other than a parent to make school decisions on behalf of the child.

Have helpful information on hand for grandparents acting as parents. School counselors may want to write to the organizations in the Resource List accompanying this digest for more information on parenting the second time around, and they may want to share it with teachers and grandparents acting as parents. They may want to check

with local social service agencies to find out about support groups and "reparenting" or "grandparenting" classes for grandparents raising a second family. Such services may help reduce the isolation that is commonly cited as a major problem for grandparents raising their grandchildren (de Toledo & Brown, 1995).

Keep in mind that short-term "respite care" for young and school-age children often tops the "wish list" of grandparent caregivers (Turner, 1995). If they do not already routinely do so, schools can prepare information in advance on before- and after-school programs, on lunch and breakfast programs, and on Head Start or other preschool programs for *all* families.

Be sure that school policy supports appropriate referrals for educational, health, and social services, as needed. Grandparents may not be aware of services available to help their grandchild academically or to help the child deal with emotional and psychological problems. Eligibility for such services may be in question in some situations, yet many grandparent–grandchild families are particularly in need of this kind of assistance (AARP, 1993).

Keep in mind that school may be a much different place from the schools that grandparents remember. Schools might consider scheduling extra time for grandparent–teacher conferences, letting grandparents know how to reach the teacher not only when there is a problem but at any time, and encouraging grandparents to volunteer at school to gain a sense of current school practices.

Use "family-friendly" strategies to encourage surrogate parents to take an active role in their children's education. These strategies include using inclusive language on home–school communications. Schools might want to stress to teachers the importance of understanding how the child views his or her primary caregiver. When the teacher is sending home important notices, the teacher needs to know whether it is "Grandmommy" or "Poppa" who will need to read, sign, and return the forms. The child and his or her classmates need to hear the teacher's accurate acknowledgment of this important relationship.

School Strategies Intended To Help Grandchildren

Schools can also help children cope with the stresses of adjusting to their living arrangements. The strategies listed here particularly affect the children.

Anticipate transitional or adjustment difficulties and act to minimize them. If a grandchild has only recently come into the grandparents' home, he or she may need time to adjust to a new routine, including expectations that he or she will attend school regularly and complete schoolwork.

Look for children's strengths and build on them. As many as two-thirds of children who have grown up in difficult circumstances have within them the resilience to grow up to lead healthy, productive lives (Benard, 1991). With support and sensitivity, these children can often meet teachers' expectations.

Place children living with grandparents with the most stable and experienced teachers. Whether because of long-term family instability or recent sudden trauma, children living with their grandparents may not only need extra attention during the school year but also the classroom stability that an experienced teacher can provide.

Try not to single out children because of their family status in front of peers or other teachers. Shame and the feeling of being different from their peers, however unjustified, can contribute to a difficult school adjustment for these children.

Conclusion

Children from families headed by grandparents constitute a growing proportion of students in schools, and their numbers can be expected to continue to increase. Schools that recognize and support these nontraditional families will be able to provide better service to their communities.

See the *Grandparents as Parents Resource List* of related publications and organizations.

For More Information

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Language Minority Students in School Reform: The Role of Collaboration

Carolyn Temple Adger, Center for Applied Linguistics

Change is a constant for schools. Many factors contribute to a continuous modification of schools' missions and services: demographic shifts; new policy, curricula, and procedures created at the district and state levels; internal conditions and decisions by administrators, teachers, and students. However, the current reform movement promises to surpass previous change efforts by far. Encompassing a variety of initiatives for fundamental change in the way schools function to promote student success, this movement promises to affect everyone—students and teachers, principals and superintendents, parents and employers.

Like earlier drives for reform, the current one aims to improve students' academic achievement. The focus is on rethinking and restructuring schools to serve all students well (CPRE Policy Briefs, n.d.). Curriculum and instruction are being modified to challenge and engage all students and to articulate programs across grade levels. Central to this reform is the involvement of staff members in decision-making. This entails changing the way practitioners relate to each other, to administrators, to students, and to parents (Lieberman, 1995). Traditional hierarchical structures are giving way to more collaborative structures. The goal is to re-conceptualize and renew the school's total operation from within so that reform is tailored to local conditions and teachers are committed to what they have helped to craft (Weiss, 1995).

Can such fundamental change benefit all students, including those for whom English is not the primary language? Gandara (1994) warns that "while LEP [Limited English Proficient] and other 'at risk' students are frequently cited as justifications for why reforms are needed, they are rarely included in any specific way in the reforms themselves" (p. 46). School reform measures hold as much promise for English language learners as for other students—but not without continuous, explicit attention to how these students' language skills, cultural backgrounds, and experiences uniquely shape the school's work.

This digest focuses on educators' collaborations among themselves and with parents in reforming schools to serve language minority students well. Examples come from the Program in Immigrant Education, a national program funded by the Andrew W. Mellon Foundation to improve the education of immigrant students in secondary school.

Leadership in Changing Schools

While staff collaboration is being emphasized, strong leadership remains crucial to the change process (Wagner, 1994). As a culturally and linguistically diverse school works collaboratively to refine a shared vision of excellent schooling and an educational program that reflects it, the principal must continually advocate for the inclusion of English language learners (Goldenberg & Sullivan, 1994; Minicucci & Olsen, 1992). By explicitly keeping language and culture on the reform agenda and insisting that every teacher participate in the school's continuous improvement process, the principal can ensure sustained attention to these students.

Teacher Inquiry

Reforming a school usually requires that the whole staff or significant groups within it take stock of their practices and devise new directions (Wagner, 1994). This may mean modifying traditional beliefs and practices to respond more accurately to students' learning needs. One useful mechanism for change is inquiry groups, in which teachers raise questions about students' success in their school, gather and analyze data, and plan responses (Joyce & Calhoun, 1995). California Tomorrow, a research, advocacy, and technical assistance organization, has led several schools through this process. Using data from the school districts' databases and others, they have identified a group of students that exhibits a high failure rate and limited progress in credit accumulation for graduation (California Tomorrow, 1995). These are immigrant students who have been in U.S. schools for some time, are orally fluent in English, and have exited the sequence of ESL and sheltered content courses, but are not doing well in mainstream courses. This finding has raised a number of questions for the schools: What language and academic needs of these students are not being addressed by the existing academic program? What does the program need in order to serve these students better? Responding has involved interviewing the students and their families to find out about their school experiences, adding additional courses to assure that the transition to mainstream courses is smoother, and monitoring this group of students closely. The school reform literature suggests other responsive practices that schools can tailor to their own needs and conditions (Macias & Ramos, 1995).

Teachers' inquiry may also focus on the "puzzlements" that teachers may experience when they do not share linguistic and cultural backgrounds with their students (Jacob, 1995, p. 451). Jacob suggests adding anthropological methods to reflective practice, an approach that promotes practitioners' critical review of their work (Schon, 1983). Working as anthropologists do, teachers identify a problem in terms of their own cultural knowledge about teaching and learning, closely observe (and perhaps record) the problematic situation over time, talk with students and others, and collect relevant documents, such as students' work. Analyzing data from the observations, interviews, and documents involves locating any disjunction between the teacher's expectations and the students' performance, developing an intervention, and monitoring its implementation by using these same methods. Teachers taking the class "World Englishes and their Speakers," taught by faculty from the University of Maryland Baltimore County, used some of these techniques in case studies of students whose first language was a variety of English not native to the United States. Analysis of recorded interviews allowed them to pinpoint contrasts between the

students' English and their own. These insights, along with studying research about the students' language and talking with community members from the students' country, helped teachers to understand better the relationships among varieties of English (Crandall, 1995). Combining a reflective perspective on school life with an anthropological focus can inform educators' collaborative efforts to incorporate language minority students into the school's continually evolving program (Trueba, 1989).

Collaborating Beyond the School

Current views of reform also emphasize strengthening and transforming school relationships with parents and the community to make them more collaborative. Regardless of income or level of education, parents can support children's education—for example, by reading with them and talking about the text in the native language or in English. Even when parents' own level of literacy is low, they support their children's education when they encourage an inquiry approach to learning in the home. Through discussion with their children about events at home and in the community, parents can help students acquire important verbal skills that will help them to engage in instructional discourse and to become critical readers and consumers of information (Gandara, personal communication). Schools need to develop partnerships with parents that allow them to identify and validate such parental contributions to the shared task of educating students.

Thus far, the reform literature has little to say about successful collaborations involving schools and parents in linguistically and culturally diverse settings, despite well-known guidelines for their design: holding meetings in the community (not just at the school); choosing leaders who are at ease in both the school and the community; conducting meetings in the parents' primary languages; and informing parents about substantive and realistic contributions they can make to their children's education (Olsen, et al., 1994).

Similarly, the potential benefit of collaboration among culturally diverse communities and schools has not yet been fully realized. Social service organizations can be useful to both families and schools, offering health services to families of language minority students, for example, and organizing meetings where parents and educators exchange information. In Houston, where the Intercultural Development Research Association has a partnership with a middle school, a dinner event strengthened relationships among families, school staff, and a coalition of local businesses. In Prince George's County, MD, a number of community organizations, many affiliated with the Coalition for the Foreign Born, have sponsored forums for immigrant students and their parents on immigrants' legal rights concerning education and employment. At California State University Long Beach, The Center for Language Minority Education and Research has set up a Parent Leadership Institute that trains immigrant parents to take a leadership role in their children's schools and work collaboratively with school personnel to enhance school services for their children (Ramirez & Douglas, 1988).

Time to Renew

Reforming schools to serve all students, including those who are learning English, takes time. Change has been characterized as a process (Fullan, 1991) that is incremental (Pechman & King, 1993), chaotic, and ongoing (Fullan, 1993). None of the elements that contribute to effective change is easily or quickly achieved. Building a collaborative professional community with strong, committed leadership; using teacher inquiry and reflection as vehicles for improving instruction and professional development; and inventing and preserving connections among the school, the parents, and the community—all of these must be seen as long-term, challenging processes.

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Parent, Family, and Community Involvement in the Middle Grades

Barry Rutherford and Shelley H. Billig

A research project that was focused on family and community involvement in comprehensive districtwide programs, school restructuring, and adult and child learning programs in the middle grades provided an opportunity to examine nine local sites that presented unique challenges for family and community involvement. Two central questions were explored at all sites. First, how do schools and districts involve families and the community as partners in education reform? Second, how do schools and districts create partnerships that acknowledge the roles of the family, school, and community in the growth of the child, and how do these systems interact? By synthesizing findings across all nine sites, researchers developed a set of eight "lessons" which enrich our understanding of the critical and complex nature of school-family partnerships in the middle grades.

Lesson 1: *The stakes are high and immediate for everyone in the middle grades.* In the middle grades, students make personal and educational decisions with serious consequences. They wrestle with issues of authority, independence, changing family relationships, and increased visibility in the community, all of which require that students practice social skills for community participation. These challenges, coupled with the perception that the middle-grade years are a watershed time for young adolescents, create a compelling case for the critical importance of the middle grades.

Implications. Schools can create programs that respond to the unique needs of middle-grade students and their families. Communities can publicize positive reports about and provide positive interventions for middle-grade students. Families can engage middle-grade children in active decision making. In Fort Worth, for example, the Vital Link program places sixth-graders in more than 140 businesses for several hours each morning during a one-week internship. The goal is to understand career opportunities in a variety of fields through hands-on experience.

Lesson 2: *Challenges can become opportunities for parent and family involvement.* In addition to coping with the physical and emotional changes of adolescence, middle-grade students and their families must also deal with changes in the way schools operate. Communication patterns change; the student's day is fragmented, with more teachers, subjects, and extracurricular choices.

Implications. Schools can create structures that decrease the fragmentation of the school day; provide parents with strategies to support the academic success of their middle-grade students; and make available specific educational opportunities geared to the special interests of middle-grade families. Families can serve as advocates and resources for middle-grade children. Restructuring in Shelburne, Vermont, has focused on organizing elementary and middle grades into a nine-year system, divided into three-year "communities," making it more likely that students will learn necessary social skills and parents will find middle school welcoming.

Lesson 3: *Relationships are the essence of middle-grade family and community involvement.* Schools and communities are ideal contexts for developing and fostering strong relationships with the families of middle-grade students. One-on-one communication between families and teachers, the addition of school personnel to deal with family issues, and community contact with students in their roles as consumers and workers help to build support for middle-grade schools.

Implications. Schools can encourage direct contact between middle-grade families and teachers and can create staffing patterns that support these relationships. Communities can take advantage of middle-school students' relationships with local businesses (as workers and consumers) to make supportive community connections. Families can be encouraged to build personal relationships with school staff.

Lesson 4: *Responsibility and decision making are shared by a broad array of players, including the child.* Just as adolescents' roles change during the middle grades, so do their responsibilities and decision-making strategies. School, home, and community are all places where middle-graders learn and are actively involved in positive or negative ways. Teachers, counselors, social service personnel, businesspeople, families, and students themselves can and should share responsibility and decision making with regards to the curriculum and the delivery of instruction. The challenge for middle-grade schools comes in coordinating information and efforts across a broad range of stakeholders.

Implications. Schools need to include middle-grade families, teachers, and students in decisions about curriculum and instruction; involve families and students in conferences about course-work and individual progress; and coordinate information from the school to ensure smooth communications. Families need to understand school policies and expectations to act as advocates and supporters of middle-grade students.

Lesson 5: *Sustained parent, family, and community involvement depend on active advocacy by leaders.* Leadership in the school and community plays a key role in fostering parent, family, and community involvement. Leaders set the tone for involvement, make it a priority, and provide the context that enables school personnel, families, community members, and businesspeople to maintain an active role in middle-grades education.

Implications. Schools need to look for a whole array of community connections; use creative approaches in defining leadership, designing programs, and solving problems; and provide a climate for success that includes making available fiscal and human resources. Communities should take an active role in making connections with schools. Families can represent the interests of middle-grade children, and they can use community connections to advocate for the school. The principal at Barret Traditional Middle School in Louisville, Kentucky, for example, views his leadership as going beyond the boundaries of the school and into the community.

Lesson 6: *A system of supports for front-line workers is critical to parent and family involvement.* Frontline workers—teachers and other school personnel—are key players in family involvement. Through these frontline workers families are connected to the services provided by the school or community. They need professional development, the ability and authority to make decisions about services to address family needs, structures that provide the workers themselves with social and emotional support, and other resources.

Implications. Schools can provide professional development on promising practices and family involvement programs; empower frontline workers to make key decisions that connect middle-grade families with needed services; create structures that provide social and emotional support for frontline workers; and design support systems that outline expectations and give frontline workers resources for family involvement. The Kentucky Education Reform Act mandates "Youth Service Centers" in middle schools serving economically disadvantaged students. A wide range of services are available through local agencies there.

Lesson 7: *Families need connections to the curriculum.* In the middle grades, multiple teachers, the increasing complexity of course content, and students' growing need for autonomy tend to weaken the tie between parents and the curriculum that existed in elementary school. Families may find that the ways in which they are involved will undergo fundamental change during the middle-grade years.

Implications. Schools need to engage families in meaningful home learning tasks; demonstrate ways for families to work with middle-grade students; and use the content and characteristics of middle-school learning experiences as starting points for family connections. Families need to create an environment that values and promotes achievement and communicate with the school and teachers about what is being taught and their child's progress. Community District 3 in New York City provides families with home learning "kits" that reinforce instruction; Parent Center staff in Natchez, Mississippi, demonstrate materials and activities that families can use to work with their children at home.

Lesson 8: *Schools need connections to the community.* The geographic areas served by a school broadens in the middle grades. Middle school is often located at a greater distance from a student's "home" community; school attendance areas often draw students from several different communities. In defining their own "community," schools must recognize the unique strengths of diverse, multiethnic, and multiracial school populations in both rural and urban settings. They must implement strategies to provide multiple opportunities for the larger community to be involved in the middle grades.

Implications. Schools need to acknowledge the unique characteristics of the school community; design programs to build on its strengths; seek opportunities to invite the community to participate in school activities; and use a variety of strategies to communicate directly with the community. Communities must take an active role in school decision making. And families must find a variety of ways to participate and adopt new roles for participation. Project REACH at Beck Middle School in Georgetown, South Carolina, uses community members as instructional resources.

Conclusion

These eight lessons and accompanying examples illustrate some of the ways in which districts and middle-grade schools engage families and the community. These partnerships go beyond information exchange to foster school change and the creation of relationships that contribute to student success.

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Parent Participation in Middle School Language Arts

by *Nola Kortner Aiex*

In an article entitled "Do Middle Schools Work? In a Word YES!" (1993) Peter Scales maintains that research indicates that middle schools are very successful at meeting the needs and developmental characteristics of young adolescents. One reason for their success, he believes, is that middle schools generally use a team approach that provides stability and continuity as teachers integrate subject areas into broader themes and units. Parents should be part of this team approach, and most middle schools welcome parents as part of the team.

This *Digest* will review some ideas and suggestions about parental involvement in middle school education, focusing on the language arts.

Developmental Concerns and the Middle School Student

Although parental involvement appears to be especially important to students during the middle years, these early adolescent years are often turbulent and difficult for young people. For example, according to a study by Cotton and Mann (1994), concerns are sometimes voiced by administrators about the psychology of the middle school student and his/her feelings about parents. Many middle school adolescents seem to be at an age when they do not want to have their parents around. Cotton and Mann quote one principal as saying "these kids weren't born, they were hatched at age 13 without any parents at all." Such comments, although amusing, make it difficult to recognize that early adolescents should be seen as "real human beings who participate in the larger world and have serious concerns about the world and their own adolescence (Beane, 1992). For recent information about adolescent development, see Wavering (1995); for developmental theories, see Jordan (1993); for a resource on adolescent literature with life-connecting topics, see Sheppard and Stratton (1993).

Increasing Parental Involvement

While educators now recognize that it is imperative for schools to find ways to increase parental and family involvement in children's education, the comments in the preceding section show that they are sometimes unsure as to the most effective ways of doing so.

Nevertheless, Cotton and Mann's study (1994) concluded that there is a substantial amount of parent involvement already happening at the middle school level. Generally, parents are involved when their children are part of the activity—open house, conferences, dances, etc. The goal is to involve them on a day-to-day basis.

Epstein et al. (1992) state that "research shows that parent involvement improves student achievement." In the teacher's manual developed by Epstein for an interactive homework program called TIPS, the team approach cited at the beginning of this Digest is put forth as the best approach. She and her group also emphasize that "teachers play a critical role in whether families are involved in their children's education."

TIPS features homework assignments that require students to talk to someone at home about something interesting that they are learning in class. However, it makes the homework the students' responsibility and does not ask parents to "teach" subjects or skills they are not prepared to teach. With TIPS, homework becomes a 3-way partnership involving students, families, and teachers.

TIPS provides clear step-by-step explanations as to what is expected of the parents and the students. The appendix dealing with language arts contains both explanatory and narrative writing activities, sections on grammar and on words and meanings, as well as material about linking reading and writing. A letter to the parents explains the objective of each activity, when it is due, and the materials needed to complete it.

In another program, working together, a language arts teacher and a librarian at one middle school adopted a "booktalk" approach to improve parental participation in their young adolescents' reading (Morris & Kaplan, 1994). (Parents received advance notice of the program by mail at the start of the school year.) Students were given a list of 15 books from which to select one—a class period was spent talking about each book and giving the students time to examine the books. They then went home and shared the list with the adult with whom they were going to read. Students signed up for 5 books in order of preference and were prepared for possibly

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BEST COPY AVAILABLE 189

not receiving their first choice. Students were put into groups according to book titles—each group was limited to about 10 students. Books were distributed and students and their parent reading partners were given about 3 weeks to read their books. Booktalks were planned, and parents were invited to attend these discussion groups.

The booktalk began with coffee, juice, and cookies, and students and their parents went to an assigned room to meet with others who had read the same book. Each group had a facilitator who had also read the book. Facilitators have been administrators, parents, math teachers, librarians—as the popularity of the program increases, so does the number of people who volunteer as facilitators. At the talks, where the desks are arranged in a circle, the facilitator begins the discussion with general questions about the book, but conversation usually flows freely. Morris and Kaplan (1994) state that: "given the opportunity, middle school students and their parents enjoy discussing topics together." They also report that many adults were surprised that their children could discuss literary books so well. After the activity was completed, students wrote letters of commentary to their parents—letters which allowed for further activities at school and which, in many cases, strengthened communication between parents and children.

Folsom (1994) implemented a similar program with students in a rural middle school to improve their interest in reading. She recruited parents who agreed to enroll their children in a "reading club." These parents agreed to read to their children on a daily basis and to turn in simple reading logs each month. For their efforts, every month children were rewarded with a free book of their choice. Reading interests did, indeed, improve, and parents were gratified by their children's success and their own involvement in the children's education.

The Teacher's Role

Brian White (1992) stresses that cognitive preparation for reading enhances understanding of literature, "whether through discussion, direct instruction in interpretative strategies, or the sequencing of texts." He feels that if the teacher takes the time to prepare students for the literary texts they are going to read, it will pay dividends. If students can be helped to retrieve relevant background knowledge and experiences before their reading, they will be "more engaged and will read with greater understanding." Such preparation would also probably facilitate discussion in a program like Morris and Kaplan's.

A Volunteer Program

Some of the language arts are in danger of not receiving any notice at all, usually because there is no funding in the public schools for anything but the "basics." Jody Rathgeb (1994) tells the story of one dedicated volunteer who singlehandedly ran a theater program in a Pennsylvania middle school. She was so identified with dramatics that she was listed in a newsletter as the drama coach of the school district, even though her involvement was entirely voluntary—actually, no position for a drama coach existed.

She began her stint as "drama coach" by joining the school district's parent-teacher organization, since her own children were students at the time. She then organized a creative dramatics group funded through the local parks and recreation district, in the process getting the middle schoolers to work as a team. In a collaborative effort, teacher and students created a theater piece from student-written poems, giving 3 performances, 2 for parents and other adults and another for a middle school assembly. Although the children seemed to enjoy performing for their peers the most, the adult audiences seemed to appreciate the piece more. As the volunteer coach/director said: "I think the piece spoke...to the parents."

One important outcome of the program for the coach is that some of the middle school's staff members are interested in incorporating drama into their language arts curriculum. Another factor is that as a drama coach aiming eventually for a performance, the coach knew early in the process that she had to deal with her players' in-between age—"sometimes they are just kids, but at other times they want to be taken seriously by adults" (Rathgeb, 1994). For parents, helping their children in any one of the language arts during this "in-between" age can be a very rewarding experience.

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Preventing and Resolving Parent-Teacher Differences

Lilian G. Katz, Amy Aidman, Debbie A. Reese, and Ann-Marie Clark

Parents and teachers share responsibility for creating a working relationship that fosters children's learning. This digest examines the cultural context for parent-teacher relationships, suggests some general strategies for creating a climate in which misunderstandings and disagreements between parents and teachers can be minimized through communication, and discusses some general principles for parents and teachers in dealing with misunderstandings or disagreements as they arise.

The Cultural Context for Parent-Teacher Relationships

It is important for teachers and parents to remember that they know the child in different contexts, and that each may be unaware of what the child is like in the other context. It is also useful to keep in mind generally that different people often have distinct but disparate perspectives on the same issue.

For many parents, a fundamental part of the parenting role is to be their child's strongest advocate with the teacher and the school (Katz, 1995). Other parents, however, may be reluctant to express their concerns because of cultural beliefs related to the authoritative position of the teacher. Others may have difficulty talking with teachers as a result of memories of their own school years, or they may be unsure of how to express their concerns to teachers. A few parents may fear that questions or criticism will put their child at a disadvantage in school.

Many parents may be surprised to learn that teachers, especially new teachers, are sometimes equally anxious about encounters with parents. Most teachers have received very little training in fostering parent-teacher relationships, but with the growing understanding of the importance of parent involvement, they may worry about doing everything they can to encourage parents to feel welcome (Greenwood & Hickman, 1991).

Avoiding Conflicts between Parents and Teachers through Open, Ongoing Communication

The foundation for good parent-teacher relationships is frequent and open communication. Both teachers and parents share the responsibility for creating such a foundation. There are several strategies teachers can use to establish a climate conducive to open communication. Teachers can:

Let parents know how and when they can contact the school and the teacher. As early in the school year as possible, teachers can explain that: (1) they can be reached at specific times or in specific ways; (2) they can be contacted directly as questions or concerns arise; and (3) they have given a lot of thought to their teaching philosophy, class rules, and expectations. In addition to personal interaction, teachers often use newsletters or letters home to provide this information to parents, perhaps including a phone number and, if available, an electronic mail address by which they can be contacted (Barnett, 1995). Some teachers encourage two-way communication by including in newsletters or letters home a short survey about children's interests or parents' hopes or expectations for the school year.

Practice an open-door, open-mind policy. Teachers can invite parents to visit the class at any time that is convenient to the parent. When they visit, parents can monitor their child's perceptions of a situation and see for themselves what the teacher is trying to achieve with his or her students.

Elicit expressions of parents' concerns and interests in preparation for parent-teacher conferences. Some schools organize parent-teacher meetings to discuss their goals early in the school year. On these occasions, teachers can ask parents to share their main concerns and goals for their child. Brief questionnaires and interest surveys also provide good bases for meaningful discussions in parent-teacher conferences (Nielsen & Finkelstein, 1993).

Involve parents in classroom activities. Teachers can let parents know how they can be helpful and solicit parents' assistance with specific activities. The more involved parents are in what goes on in the classroom, the more likely they are to understand the teacher's goals and practices.

Parents also have an important role to play in fostering open communication between themselves and teachers. They can:

Introduce themselves. At the beginning of the school year, parents can contact teachers and let them know when they can be reached most easily, daytime or evening, to discuss their child's classroom experience, and how they would prefer to be contacted (telephone, email, letter, etc.).

Be involved in classroom and school activities at whatever level work and family responsibilities allow. If parents cannot volunteer or go on field trips, they can let the teacher know that they are interested in helping in other ways—with a special display or some activity that can be done on an occasional weekend, for example. They can let the teacher know that they have skills that they would be willing to share even if they are not sure how they can be useful in the classroom. Or, they can let the teacher know that special circumstances (an extremely ill parent, or an especially

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demanding job, for example) prevent them from being formally involved, but that they are always interested in how their child is doing and would welcome communications about their child on a regular basis, not just when there's a problem.

Initiate regular contact. Parents need not wait for the teacher to call them; they can contact the teacher at times the teacher has indicated are convenient.

When Parents and Teachers Disagree: Strategies for Teachers and Parents

On those inevitable occasions when parents and teachers disagree about curriculum, assignments, peer relationships, homework, or teaching approaches, a pattern of open communication can be invaluable for resolving differences (Willis, 1995). But dealing with direct disagreements also requires *respect* and *discretion* by both parents and teachers.

In times of disagreement, teachers should:

Know the school policy for addressing parent-teacher disagreements. It is a good idea for teachers to check school and district policies for handling conflicts or disagreements with parents and to follow the procedures outlined in the policies.

Use discretion about when and where children and their families are discussed. It is important to resist the frequent temptations to discuss individual children and their families in inappropriate public and social situations or to discuss particular children with the parents of other children. Confidentiality contributes to maintaining trust between parents and teachers.

Parents' discussions of disagreements with teachers need to be based on knowing the facts. Parents can:

Talk directly with the teacher about the problem. The best approach is to address complaints at first directly to the teacher, either in person or by telephone, and then to other school personnel in the order specified by school policy. Sometimes the teacher is unaware of the child's difficulty or perception of a situation. Sometimes a child misunderstands a teacher's intentions, or the teacher is unaware of the child's confusion about a rule or an assignment. It is important to check the facts directly with the teacher before drawing conclusions or allocating blame. Direct contact is necessary to define the problem accurately and to develop an agreement about how best to proceed.

Avoid criticizing teachers in front of children. Criticizing teachers and schools in front of children may confuse them. Even very young children can pick up disdain or frustration that parents express about their children's school experiences. In the case of the youngest children, it is not unusual for them to attribute heroic qualities to their teachers. Some even think that the teacher lives at school and thinks of no one but them! Eventually such naivete is outgrown, but overheard criticism is likely to be confusing in the early years and may put a child in a bind over divided loyalties. Besides causing confusion and conflict, criticizing the teacher in front of the child does nothing to address the problem. In the case of older children, such criticism may foster arrogance, defiance, and rudeness toward teachers. Children's respect for authority figures is generally a shared goal in most cultures (Katz, 1996).

Choose an appropriate time and place to discuss the disagreement. Parents should keep in mind that the end of the day, when both teachers and parents are tired, is probably not the best time for a discussion involving strong feelings. If an extended discussion is needed, make an appointment with the teacher.

As children grow older, they are generally aware when their parents are upset about the teacher or a school-related problem. As parents discuss these incidents with their children, they are modeling ways to express frustration with the problems of life in group settings. As children observe and then practice these skills, the coping skills become "tools" in a child's "psychological pocket" to be used in future life experiences.

Conclusion

Teachers and parents share responsibility for the education and socialization of children. Preventing and resolving the differences that may arise between parents, teachers, and children with constructive communication, respect, grace, and good humor can help make school a pleasant place.

For More Information

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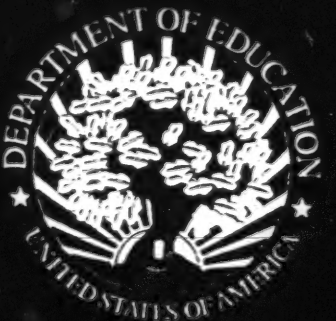

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193

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